Library Rooms
Euclid Ave

The Trade Review.

A JOURNAL OF MANUFACTURES, COMMERCE, INDUSTRY, SCIENCE, ART AND INVENTION.

Vol. XIV.—No 36. CLEVELAND, SEPTEMBER 3, 1881. No. 709

DECKER BROS.

PIANOS

have shown themselves so far superior to all others in excellence of workmanship, elasticity of touch, beauty of tone and great durability, that they are now earnestly sought for by all persons desiring the

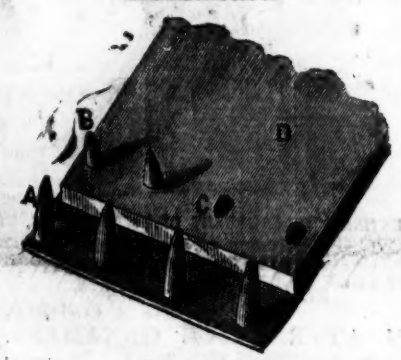
Very Best Pianos,

LOW PRICES. - TERMS EASY.

B. Dreher, General Agent,
347 Superior Street, CLEVELAND, O.

THACHER & CO.

Manufacturers of



THACHER'S PATENT

Belt Fasteners

Send for Sample and Price List.

Office 334 Euclid Ave., Cleveland, Ohio.

A Splendid Chance

To Large Manufacturers.

FULLY EQUIPPED

Machine Shop for Sale.

A Bargain!

IN CONSEQUENCE of the death of our Senior Partner we wish to concentrate our business in Zanesville, and will sell our NEWARK MACHINE WORKS, which is one of the largest and best equipped establishments in Ohio, having Railroad and every other facility for a large manufacturing business.

Address, H. & F. BLANDY,
Zanesville, Ohio.

NATIONAL BOLT & PIPE MACHINERY CO
MFRS OF HAND & POWER BOLT & PIPE CUTTERS, BOLT
HEADERS, BOLT HEADERS, HOT & COLD PRESSED NUT MACHI
TAPS & DIES &c. SEND FOR CIR. CLEVELAND, O.

CLEVELAND LARD OIL & CANDLE WORKS
ESTABLISHED 1844.

George A. Stanley,

Manufacturer of

REFINED LARD,
LARD OIL, AND
Stearine Candles

Cleveland, O.

M. D. LEGGETT & CO.
ATTORNEYS AT LAW,
City Hall, Cleveland, O.

They obtain United States and Foreign Patents; prosecute and defend in suits for infringements in the U. S. Courts, make searches and render opinions as to the validity of Patents, and examine machinery to determine whether the same infringe patents.

M. D. LEGGETT,
Ex-Commissioner of Patents.
L. L. LEGGETT.

Eben S. Coe. **COE & HARBAUGH,** A. C. Harbaugh.
Manufacturers of

LARD OIL, TALLOW OIL,

Registered.

Stearine and Stearine Candles.

REFINERS OF

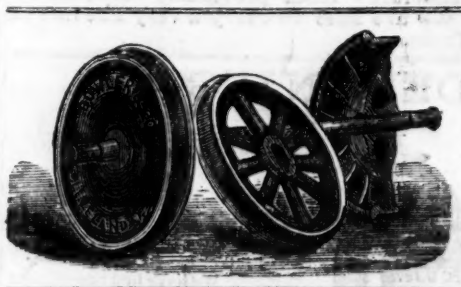
PURE LEAF LARD,

Office, 31 & 33 Atwater Build'g, Works Perry & Cherry Sts,
CLEVELAND, OHIO.

PATENTS

303 Euclid Ave., Cleveland, O. | TRACY, DYER & WILBER, Solicitors and Counsel in Patent Litigation | 518 Seventh St., Washington.

Send for "ALL ABOUT PATENTS," 140 Pages—Free.

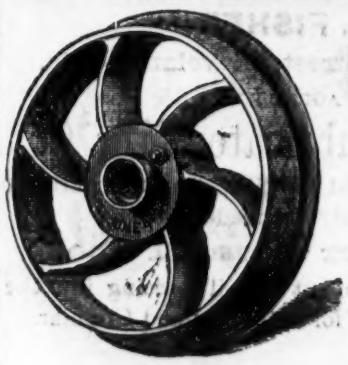


Cleveland Foundry.
CASTINGS
For Machinery and Rolling Mills.

Car Wheels
all sizes and kinds, with and without Axles.
Chilled Faced R. R. Frogs.
STREET RAILROAD TURNOUTS
Nos. 9, 11, and 13 Winter Street.
BOWLER & CO.

CLEVELAND BRIDGE AND CAR WORKS.

Builders of BRIDGES and ROOFS, either of iron or wood. Also FREIGHT and STREET RAILWAY CARS, with all desirable improvements. Manufacturers of Car Wheels and Castings of all kinds. OFFICE: 121 Superior Street: Works. cor. Lake and Wason Streets, CLEVELAND, OHIO.



CEDDES & EAGAN,

Iron&Brass Founders

AND MACHINISTS,
Sharpsville, Pa.

ROLLING MILL, BLAST FURNACE AND COAL BANK MACHINERY A SPECIALTY.

MANUFACTURERS OF

WATT'S IMPROVED SELF-OILING CAR WHEELS,
AND PITT CARS.

Also builders of the Whitwell Ovens

Plans and Detail Working. Drawings of all kinds of work furnished.

Agents for A. S. Cameron's Pumps.

SHORT & FORMAN,

Blank Book Makers,

Job Printers,

Lithographers, Book Binders and Stationers.

105 & 107 Superior Street,
CLEVELAND, O.

ELEVENTH

Northern Ohio

FAIR,

CLEVELAND, O.,

September 5 to 9, 1881.

OPEN TO THE WORLD!

HALF FARE

for Freight and Passengers on all Railroads centering in Cleveland.

RACES EACH DAY!

COMMENCING TUESDAY.

Direct Access to the Grounds by Rail.

TICKETS, 50 CENTS,

GOOD FOR BOTH FAIR AND RACES.

For Information and Catalogues, address the Secretary, at Cleveland, Ohio.

GEO. H. BURT, Secretary. J. P. ROBINSON, President.

A. & F. POWELL'S

TOLEDO WIRE WORKS,

Manufacturers of

Wire Counter Railing,

Plant Stands, Settees,

Chairs, Wire and Iron Fencing.

238 Summit Street, TOLEDO, O.

ÆTNA MACHINE WORKS,

F. I. FREEMAN, Proprietor,

(Late proprietor of the Douglass Machine Works, Warren, Ohio,)

Manufacturer of

Steam Engines,

Circular Saw Mills,

Steam Pumps,

Iron and Brass Castings,

AND MACHINERY OF ALL DESCRIPTIONS.

SHARON PA.

CLEVELAND

Business College,

J. BALLHOUSE, Principal,
164 Superior Street, Opp. Weddell House,
CLEVELAND, O.

The Old Reliable

Indianapolis Business College.

(ESTABLISHED 1858)

Imparts a PRACTICAL, USEFUL and PROFITABLE EDUCATION, meeting the wants of nine-tenths of the young and middle-aged men, INSURING THEM A SUCCESSFUL FUTURE. Indorsed by the Indiana Legislature of 1878-'79, Indianapolis Board of Trade, Business Men and City Council, and 24,000 successful graduates in active business. NO YOUNG MAN should think of entering upon a business career before taking this thorough and complete Business Training.

LEARN TELEGRAPHING at this institution and get office on the lines.

Address, with stamp, for large catalogue and full circulars,

C. C. KOERNER,
Indianapolis, Ind.

YOUNG MEN AND WOMEN

$85.00 PAYS TUITION, BOARD, &C.

For 12 weeks at the Toledo Business College. For Circulars containing full information and specimens Penmanship, address

Toledo Business College,

Please mention this paper. TOLEDO, O.

Forest City

Business College,

9 PUBLIC SQUARE, (Rouse Block.)

Is the best place to go to obtain thorough instructions in Bookkeeping, Rapid Business Arithmetic, Penmanship, Shorthand Writing, Business Correspondence, Commercial Law, Grammar, Composition, etc. Those wishing to obtain a practical education in the shortest time, at the least possible expense, should not fail to attend the Forest City Business College, 9 Public Square. Call at College office or address

H. T. TANNER, Principal.

This Burner is used on the

Front Rank

GASOLINE COOK STOVE

It is straight, with but one valve and has been tested for four years, giving entire satisfaction. The gas jet is thrown direct to the top of the combustion cap, producing a steady blue flame, absolutely odorless, which cannot be done with any side valve burner. There is **no packing used in this Stove.** Agents wanted. Send for Circular and Price List. Address

American Vapor Stove Co.

9 Prospect Street, Cleveland, Ohio

H. King & Son,

CORRY, PA.,

Founders and Machinists,

Manufacturers of

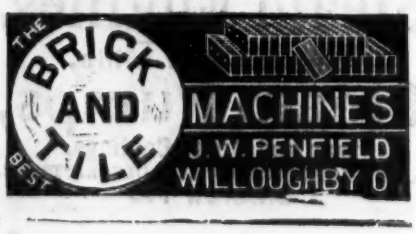
The King

Pat. Portable Boiler & Engine

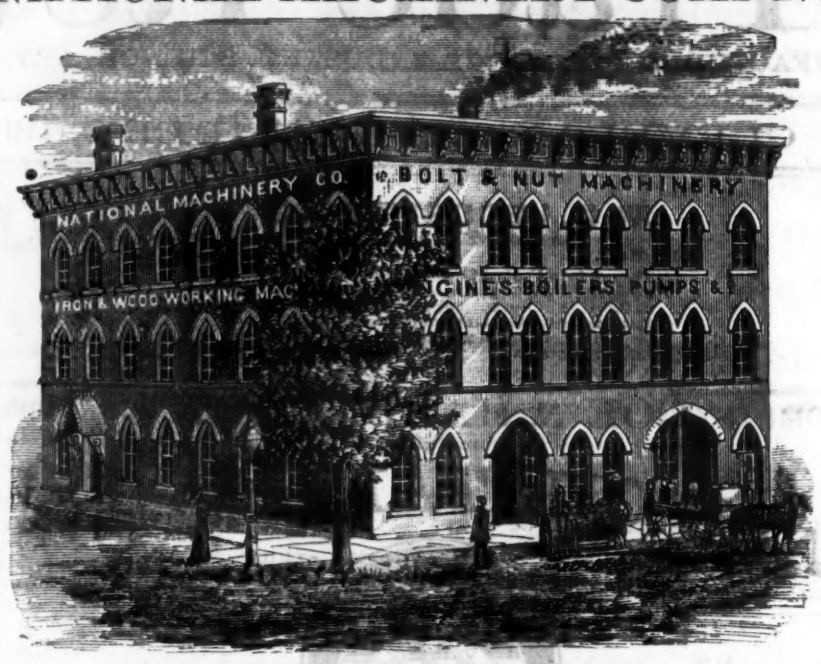
The only Portable Safety Boiler made.

Unequaled for Economy of Fuel and Repairs.

Also, General Jobbing & Repairs.



NATIONAL MACHINERY COMP'NY.



Cor. Bond & Rockwell Streets, Cleveland, O.

SALESROOM—384 SUPERIOR STREET, CORNER BOND.

Manufacturers of "National" Bolt and Nut Machinery,

Agents and Stock kept of Pratt & Whitney's Screw Cutting Tools, Taps, Dies, &c. Agents for J. A. White's and Levi Houston's Wood Working Machinery.

STOCK KEPT OF IRON AND WOOD WORKING MACHINERY,

Boilers & Engines.

In Stock for Sale:

One new 19-inch swing, 10 feet bed, Lathe, Gray maker.
One 15-inch wide by 3 feet, Planer.
One small Pond hand Milling machine. Price $100.
One Independent three spindle Drill, suitable for work up to ⅝ inch. Price $85.
Engines and Boilers, New and Second Hand, from 1 to 20 H. P.

Having moved our Salesroom to the large room previously occupied by the Wilson Sewing Machine Company, we are able to carry a very fine line of Wood Working Machinery and other Tools.

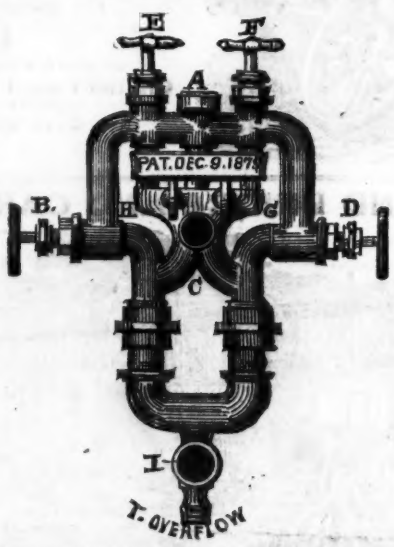
HOGUE'S GRADED INJECTOR.

GENEVA, PA., Jan. 14, 1880

Gents.:

We have had one of Hogue's Graded Injectors on our boiler since last June, and are pleased to state that it has never failed to perform its duty, separating the water as represented. At first we were skeptical of its doing what we were told it would, but it compels us to say that it surpasses any machine we have ever seen for putting water into a boiler. We wish you success. Our lift is eighteen feet.

TURNER & ELLS.



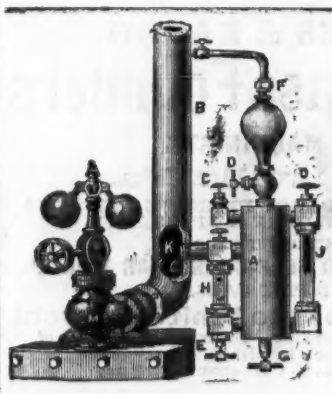
BRADFORD, PA.

We have had one of your Graded Injectors on our large 60-horse boiler long enough to have given it a thorough trial. We declare unhesitatingly that it surpasses anything we have ever seen for putting water into a boiler. It does its work well, and we pronounce it invaluable to any one using steam.

WM. DALRYMPLE.

EXPLANATION.--A--Steam supply pipe. B--Steam supply for forcing. C--Exhaust pipe. D--Steam supply for forcing. E and F--Cut-off, water stems. G and H--Cut-off, water cocks. J--Feed pipe leading to boiler. T--Hot overflow. Water supply on other side of cut.

McDONALD & HOGUE, Proprietors,
SANDY LAKE, PA.



A. FISHER,

48 Merwin Street, Cleveland, Ohio,

AGENT FOR

Detroit Lubricator Mfg. Co.

Decidedly the best Lubricator on the market, and the only one made that has

Indicator Glass Tube,

showing exact amount of oil passing into the cylinder. Send for Price List and Circular.

Men Paper.

H. C. CHANDLER
Engraver on Wood

Cor. Circle & Market Sts.
JOURNAL BUILDING, INDIANAPOLIS, IND.

Increased facilities for manufacturing at my new mill at **Alliance, O.** and large increase in sales has enabled me to reduce the price of my Original PURE PREMIUM BONE which is warranted pure. Send for Circular, with new Price List to

Louis Schilling, Prs. Excelsior Fertilizer Co.
Mention this paper. Alliance, Ohio.

PORTABLE

SELF-ACTING FOUNTAIN.

ENTIRELY INDEPENDENT OF WATER WORKS.
A Self-Acting Fountain,
Aquarium and Flower Stand Combined.
DURABLY MADE,
BEAUTIFUL IN DESIGN,
HANDSOMELY FINISHED.

AN ATTRACTIVE ORNAMENT.

A constant source of pleasure. Simple in construction. Not liable to get out of order, and easily operated.

Hundreds have Stood the Test

of Five Years continued use without repairs, and are now giving excellent satisfaction.

Send for Descriptive Circular.

W. J. Clark & Co., Manfrs.,
SALEM, OHIO.
New York Office and Salesroom: 78 Beekman Str.

Pure PREMIUM BONE

THE CHEAPEST AND BEST

FERTILIZER

in the world. Pure, Powerful and Inoffensive.

EXCELSIOR FERTILIZER WORKS,
SALEM, OHIO.

EDWARDS, TOWNSEND & CO.

WHOLESALE GROCERS,

And dealers in

Wines, Liquors and Cigars,

Teas a Specialty.

Nos. 151 & 153 WATER STREET

CLEVELAND, O.

THE TRADE REVIEW.

FOURTEENTH YEAR.

The only strictly Manufacturing, Industrial and Scientific Paper published in Ohio.

THIS JOURNAL IS APPOINTED THE
OFFICIAL ORGAN
OF THE
OHIO INSTITUTE OF MINING ENGINEERS.

PUBLISHED EVERY SATURDAY
—BY—
THE REVIEW PUBLISHING COMPANY
CLEVELAND, OHIO.

Publication Office, 147 St. Clair street, cor. Ontario.

Subscription, (Postage included,) $3.00 per Year.
Entered at the Post Office at Cleveland as second-class matter.

ADVERTISING RATES.

One Inch, one time	$1.50
One Inch, three times	3.00
One Inch, one month	5.00
One Inch, three months	10.00
One Inch, six months	17.50
One Inch, one year	30.00

☞ Special rates for larger space.

To meet the requirements of those desirous of taking the TRADE REVIEW for a limited time, in order to judge how far it will be advantageous to become annual subscribers it will be mailed to them for three months on receipt of fifty cents in postage stamps or P. O. order.

OUR FOREIGN TRADE FOR A YEAR.

On our foreign trade depends to a large degree the prosperity of the country. It is the possession of materials of exchange, whether for gold or merchandise, which renders a country progressively richer, and these we possess in an eminent degree. For the vast surplus on hand of our staple productions we must find foreign markets. Looking to the ratio of increase in our productive capacity, concern has been at times expressed that the consuming capacity of other nations would not be in the ratio of increase of our surplus products, but taking actual facts it is found that the demand on the whole is such as to maintain prices. One sustaining influence in the future in England, so far as our cereals is concerned, will be the actual decline in the area of wheat grown, British farmers finding out that they are at a disadvantage in competing with the growers of the Great West notwithstanding the extent of rail and water transport and the commissions of middlemen. The large trade with England that has sprung up in flour is an important element of value. This trade is a rapidly growing one, facilitated by the improved machinery that has been introduced into our mills. Indeed, our food products of all kinds can be supplied more cheaply in England and on the Continent than they can there be produced, the prolific character of our soil, the skill brought to bear on packing, the minimising of shipping charges, aiding our producers, packers and forwarders in placing these in foreign markets. As pointed out in last week's issue of the TRADE REVIEW, an increase in aggregate transactions and larger returns can be readily effected by exporters entering into direct connection with leading distributors abroad who will be interested in placing consignments before the public. Canned provisions constitute an important feature in our foreign trade, and it is gratifying to note the vigor with which the business of canning is being pushed in Ohio. In the statement of the exports and imports for the fiscal year ending June 30, 1881, just issued from the Bureau of Statistics, the imports for the year are given at $642,664,628, and the exports at $883,915,947, making a total of $1,526,580,575, an increase of about $35,000,000 over the preceding year. As compared with 1879–80, there was a falling off in imports amounting to $24,290,118 and an increase in domestic exports to the extent of $59,969,594. These are most gratifying figures. To the decrease of imports the falling off in Scotch and English pig iron landed at our ports largely contributed. Of finished iron and steel we exported to the value of $14,000,000. We prove, too, to be more independent of paper materials, wool manufactured, tin and hides and skins. There was also in the year ending June last, as compared with the previous corresponding period, a decrease in manufactures of steel and iron, of tin plate and of woolen goods. Singularly enough, although the cotton manufacture constitutes one of our most thriving industries, we imported in the last fiscal year an excess of value of $6,000,000. Fashions and styles have much to do with the large importation of cotton piece goods and articles of clothing. We exported, however, cotton goods to the value of $13,500,000. On the whole we have every reason to be satisfied with the exhibit of our foreign trade.

FEDERATION OF TRADES.

THE bold scheme has been projected for a federation of the trades and labor unions of the United States and Canada, to promote which a meeting has been called at Pittsburgh for November 15. The preamble sets forth that there are numberless trades unions, trades assemblies or councils, and various other local, national and international labor unions, all engaged in the noble task of elevating and improving the condition of the working classes, but that great as has been the work done by these bodies, there is vastly more to be accomplished by a combination of all these organizations in a federation of trades. It is suggested that the union would facilitate the discussion and examination of all questions affecting the national interests of each trade and promote the general welfare, as in electing a committee to advance legislation at Washington in the interests of the members. We have never opposed the idea of trade unions, which are calculated to be beneficial in themselves provided they do not pervert their functions. It would also, it is urged, encourage the formation of unions and their amalgamation in trade assemblies. The main point, however, is that such a combination would increase the strength of the trades severally and unitedly in overcoming the "injustice" which they consider is dealt out to them,—in other words, render them more powerful for dictation. So long as this dictation proceeds irrespective of the laws of supply and demand, and of the actual position of the business interfered with in reference to actual returns, it may create a long suspension of work, but cannot effect any good. England and France are referred to in the circular as possessing federative unions, but the result of the great majority of strikes in both those countries has been disastrous.

THE INDEPENDENT OIL REFINERS.

The independent oil refiners did not at their meeting at the Weddell House, Cleveland, display, as had been anticipated, any antagonism against the Standard Oil Company. On the contrary, its tactics would appear to have excited their admiration. The combination they have inaugurated is on the pure business ground of exacting as much for their products as possible. What they want is harmony among themselves, with the view of promoting their general interests. They consider the Standard a help in "keeping the price of oil up to a living figure." The Standard has a clear advantage over the large body of independent refiners in its vast capital and its extended organization. The independent refiners show themselves quite as autocratic in their dispositions. What they complain of is the cutting of rates among themselves, and this with no advantage to any party, the Standard being ever ready to undersell them should they attempt to offer oil at figures below its price. In such case the parties negotiated with have only to set the telegraph to work, and tell the Standard the offers made, on which information, even at a loss, it is wont to beat the independents at their own game. The smaller refiners want harmony among themselves,—this is all, and hence the combination.

COLLAPSE OF THE WHEAT "CORNER."

A DECLINE in the price of wheat, amounting to 12 cents per bushel, has overtaken the Chicago lambs, who thinking they were following the lead of great investors, got the purchases of these unloaded on themselves. A thorough lack of confidence in the artificial maintenance of prices has been developed. There has been a hot wheat scare, the condition of wheat necessarily affecting its value, and the all powerful influence of the clique agents having been withdrawn, others are left in the lurch. The profits of the "deal" of these agents is estimated at two million dollars. An old and experienced grain operator of Chicago has remarked: "Before the 10th of next month you will see lots of hot wheat posted on the Board of Trade. It has been the history of every deal in grain that has been run through the summer that the clique owning the stuff has had influence enough with the officials of the Board to prevent any grain from being posted. As soon as it is distributed into so many hands concert of action is impossible, and a great many more bins of hot wheat will be discovered than when it is held by a few men." Everything goes to show that the upward movement has been a temporary spurt, a concocted design to deceive the unwary, men with no more brains than that involved in the idea of following one's leader. The Cincinnati operators have come out with fortunes.

NORTHERN OHIO FAIR.

Each annual exhibition of the Ohio Fair is looked forward to with increasing interest. From the extensive preparations made, and the cordial support extended, it may confidently be anticipated that this year's Fair—to commence on Monday next,—will prove the most representative of the industries of Northern Ohio than any that have yet been held. As all know, the Ohio Fair is under most admirable management. Everything has been done in the way of arrangement to give effectiveness to the exhibits. The aggregate amount offered in premiums is larger than ever. No doubt tens of thousands of visitors will be on the grounds. It affords to those "in city pent," an opportunity of ruralizing, which is ever readily appreciated.

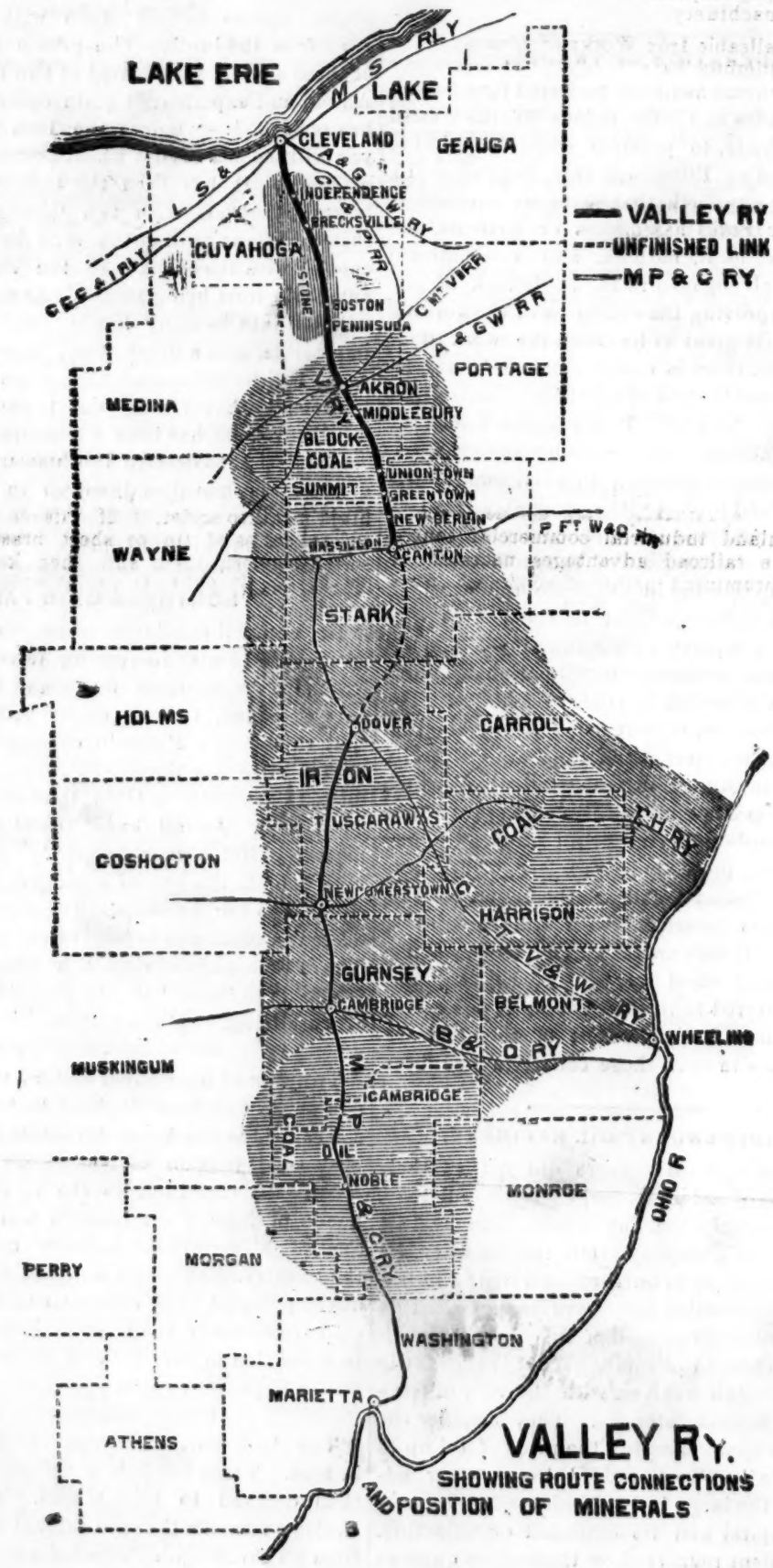
THE sum of ten million dollars' worth of gold is now on its way from England to this country. It comes for the discharge of indebtedness, representing a small portion of the balance of trade in our favor. This addition to the large stock in the hands of New York brokers will contribute its quota to stimulate the industry and enterprise of the country. England is manifestly getting alarmed at the prospect of a continuous large drain on the gold resources of the Bank of England, and is not in a position to bear without serious consequences such a depletion as that apprehended.

THE stock market is comparatively dull and weak in tone. There has been a greater pressure to sell than demand to buy stocks. The New York *Tribune* remarks that the market has simply sunk from its overweight. The feeling prevails that it will be impossible for stocks in general to recover their late inflated prices. Prices of Government bonds are firm. There have been only moderate

transactions in railway stocks. The receipts of the Assistant Treasurer of the United States at New York for August on account of customs amounted to $15,759,021, an increase of $890,519 over the corresponding period of 1880.

THE VALLEY RAILROAD.

The great value of the Valley Railroad consists in its future extensions and connections. As will be seen by reference to our railway column the stockholders at a special meeting in this city have sanctioned the project which, indeed, had been already begun, to extend the road from Canton sixteen miles to connect with the Wheeling & Lake Shore road, to build branches to the two coal shafts and a stone quarry, and to continue the line in this city across the river to a point on the Lake Shore. At the same time the acquisition of additional rolling stock, required to cope with the business



offering, was determined on, the necessary outlay being provided for by the authorization of an issue of consolidated bonds to the value of $7,000,000, to be secured by a mortgage on the property of the road extending from Cleveland to Martinsville, Belmont county, on the Ohio river. The bonds will be payable the 1st of September, 1921, in gold, in New York City. The $1,600,000 bonds now outstanding will be taken up. Cleveland will obtain another direct route to Wheeling by the extension of the Valley Railroad south of Canton to the Wheeling and Lake Erie road. The contemplated extensions will not fail to insure a very considerable augmentation of traffic, and no question can be entertained as to the stockholders of the Valley railroad having acted with good judgment in the decision come to. The stock of the line has already advanced and must appreciate in the future.

THE Mahoning and Shenango Valley Fair Association announce that the Fair will be held on the Association grounds near Youngstown from September 20th to September 23d inclusive. From the support that has been guaranteed by manufacturers and others in the way of sending forward exhibits, with the various important attractions secured, the managers are satisfied that it will exceed any that has been previously held. Youngstown has ever shown commendable enterprise in whatever would promote industrial enterprise, and will prove a large contributor. The Association offers the liberal sum of seven thousand dollars in premiums.

AT Liverpool, England, the port to which goes most of our cotton,a corrective check has been discovered to the system of cornering, a movement having commenced in favor of a cotton buying company. The names of thirty Liverpool brokers have been ascertained who were concerned in arranging the present corner. It has become a question with many spinners at Oldham whether it is desirable to continue relations with those who supported such a selfish policy. Our next issue will contain a summary of the proceedings at the public meeting that was shortly to be held on this question.

THE effects of the drouth have been bad enough in the East, but in the West the outlook is still more discouraging. In Southern Indiana, for instance, the situation is deplorable. The corn crop, it is said, will not be one-fourth, or one-half at the most, as abundant as it was last year. Late potatoes in many counties will not be worth the digging. The tobacco crop is ruined. Grass in meadow lands has been burned to a crisp, and the ground will have to be resown. Farmers in many instances are selling their surplus live stock to avoid the expense of wintering the animals. The ground is so hard that ploughing is impossible, and unless rain falls abundantly fall sowing will be delayed until the last of September or October. Water in some counties has to be hauled from three to twelve miles for domestic and stock uses, as the streams are dried up. Much suffering among the poor the coming winter may be feared in the West as well as in the East unless a change for the better comes quickly, for the price of provisions and cereals will be unusually high, the price being increased by the falling off in the British harvests.

MANUFACTURES.

TO MACHINISTS, MANUFACTURERS AND OTHERS.

THE publishers of THE TRADE REVIEW solicit items of information concerning manufacturing and other establishments in any part of the country, and all such items will be promptly inserted in these columns, free of charge. Facts are the only things needed; and all communications should be accompanied with the name of the contributor—not for publication—but as a guarantee of good faith.

Manufacturers, machinist and engineers are particularly requested to communicate any matters of interest relating to their specialties. No one need be deterred from sending any interesting facts in his own language, as all such contributions will be properly revised before sending to press.

OHIO.

THE Columbus Scraper Company, Columbus, have turned out 200,000 scrapers this season for Europe and this country.

JAMES WARD'S mills for the present will remain in Niles. The parties in New Philadelphia have found some enterprise that suits them better.—*Cleveland Herald.*

THE puddling and finishing departments of the Crescent Iron Works, Pomeroy, have been started. These works were lately purchased by Messrs. Merriman & Watson of Pittsburgh.

THE Pittsburgh, Cincinnati & St. Louis shops at Dennison, lately turned out a heavy passenger engine with 18 by 24 inch cylinders and 5½ feet drivers. Eight more are to be built.

THE following companies have been incorporated the present week: The Muskingum Coffin Company of Zanesville, O; capital, $25,000. The Fassett Piano Company of Cleveland, O; capital, $50,000.

THE Enterprise Mill at Youngstown has resumed work.

T. P. OGDEN, Columbus, who has succeeded to H. R. Smith & Co.'s works, is going extensively into the business of manufacturing cast iron water and gas pipe and special castings. He employs seventy hands.

THE Ohio Falls Car Works, at Jeffersonville, are pressed with work to their utmost capacity, and have orders to keep them busy for weeks. The company is still enlarging their buildings, and will by spring have 2,500 men employed.

FRED. HEMPY'S extensive planing mill and lumber yard, Cleveland, was consumed by fire on the 20th ult. Loss on mill. $20,000; on lumber, $30,000; insurance, $25,000. Origin a mystery. The loss on railway cars and contents destroyed and damaged is some $35,000. The through freight from New York for Cincinnati suffered most. Ten cars were consumed.

C. F. MEHLING & Co., Cleveland, formerly Mehling & Co., have placed in their works a new engine of 30-horse power; also a new boiler. A new rubbing bed for smoothing marble, granite and stone mantels has been added to their stock. They report trade better than they ever before experienced. Their large establishment, located at the corner of Superior and Dodge Streets, has lately received important additions.

J. STURTEVANT & Co., Cleveland, manufacturers of gang sawed pine lumber, doors, sash blinds, &c., are extremely busy at this time. They employ 125 hands. Shipments are principally made to interior points in Ohio and to Western Pennsylvania. The trade done has been much larger than last year. We may mention that this is the oldest house in the above line in Cleveland. The members of the firm are C. C. Sturtevant and C. C. Burnett.

AULTMAN, MILLER & Co., manufacturers of the Buckeye Mowers and Reapers, Akron, have commenced on an order which calls for thirty-two machines per day until the first three hundred shall have been made, and fifty-two machines per day thereafter.——Another large kiln has just been completed at the Buckeye Sewer Pipe Shop.——New clay shutes are being constructed at the Hill Sewer Pipe Works; also a substantial stone wall next to the creek.——Messrs. H. A. & M. Kent, owners of the Alpaca Mill building, Kent, have contracted with Stout, Mills & Temple, of Dayton, for one of their new American Turbine water wheels to be placed in the mill.—*Akron Beacon.*

THE Cleveland Industrial Machine Company, Cleveland, which was organized in March, 1880, establishing itself at 60 Merwin street, for manufacturing and dealing in machinery, are driven with work, and to secure greater capacity of production have leased the large shops 56 and 58 Merwin street. They have already built thirteen of the Murgatroyed Hoisting Engines, applicable for all hoisting purposes whatsoever, which cannot be exceeded for safety and ease of manipulation. They are prepared to do all kinds of work from rolling mill machinery to the finest and most complicated machines. The company moved to its present location in May last. They employ 20 hands,

OUR Ashtabula correspondent writes: The Ashtabula Tool Company, manufacturers of forks, hoes, garden rakes, &c., report trade good. They employ on an average 80 hands. Their shipments are principally to the West and Europe. The officers are S. R. Harris, President; W. H. Cowdery, Secretary; A. A. Southwick, Treasurer; Chas. Tinker, Superintendent.——The Ashtabula Bolt and Shaft Company, manufacturers of hickory shafts and poles, employ 45 hands, and are doing an active business. Mr. H. E. Parsons is President of this Company and Mr. H. H. Hall, Manager.——The Ashtabula Pump Company, manufacturers of Cucumber and Poplar pumps, are busy, employing 22 hands. The company was organized last Fall and commenced operations in the Spring. They ship all over the Union.——The Phœnix Iron Works Co. has 20 hands engaged in the manufacture of steam engines, shafting, pulleys, &c. Their shipments are made all over the country. Mr. Chas. Tinker is President.——McGuire Bros. & Co., who turn out all kinds of fifth wheels, and are also manufacturers of McGuire's Patent Carriage Circle, have about 20 hands in their establishment. Their shipments are principally to the West. Trade good.——P. F. Good, dealer in lumber, reports trade fair. His business, which was started in 1873, is principally local.——Frank D. Fickinger, 278 Main Street, employs 15 hands in the manufacture of harness, whips, &c. He has been in the business six years. His trade is local, but he makes some shipments to the West.——The Ashtabula Carriage Bow Company are erecting a large brick building. It will be ready in about three months for business.

THE Greenwood Machine Company, Columbus, was incorporated August 28th, 1880, and is the outgrowth of the well-known firm of James Greenwood & Sons, and the Franklin Machine Co. They are extensive manufacturers of Luckhauft's Patent Stave Machine, which they are now selling in large quantities in all parts of the country. This machine is perhaps the leading one made, as it shapes the staves by one cut of the knives, makes them concave in two ways on one side, and convex and straight on the other, leaving the stave thick at both ends and thin in the middle. The machine is now used by the leading cooperage companies of the country, who universally pronounce it first-class in every particular. Besides the foregoing, the Company pay especial attention to building all classes of machinery.

THE new Malleable Iron Works of Murray, Hayden & Co., Columbus, have been started under the most favorable conditions. The buildings consist of a moulding room, 130 by 65 feet, and annealing shops of 60 and 50 feet, which give them ample room to work in the start twenty-five moulders and ten annealers, besides sundry other hands. The business will be the manufacturing exclusively of Malleable Iron work, making a specialty of saddlery hardware and steam pipe fittings. They are prepared to finish this work in the highest style of mechanism, having introduced into the different departments the latest devices in all new machinery. Their orders come from the East and all parts of the country. The individual members of the firm having large acquaintances and experience in the business, the announcement of their commencement was the signal for the return mail to bring them large orders for work.

COLUMBUS, says the Cincinnati *Merchant and Manufacturer*, is naturally well situated for a prosperous inland industrial commercial centre, and has all the railroad advantages necessary to make her a prominent point of exchange for a large area of trade. It has been only within the past decade, however, that Columbus has developed in extensive manufacturing and jobbing lines. Previous to that time the city was like all other State Capitals, a sort of Mecca for politicians, office-seekers and prospectors for opportunities to serve the people by drawing big salaries. But in the last ten years the enterprising business men of Columbus have ignored this class of immigration as much as possible, while extending a hospitable welcome to a more practical and profitable class, offering inducements to manufacturers and tradesmen to make the city their home. We are glad to note that this course has been quite successful, and to-day Columbus presents the busy aspect of a live and growing city. Nothing is lacking in the way of fuel and water to invite manufacturers, and there are peculiar advantages in the convenience of her location to the sources of supply and demand in several leading industrial lines. Having direct connection with the vast and rich coal fields of the Hocking and Jackson sections, and being within easy reach of the iron furnaces, with the swift Scioto running by her doors, there is every inducement for the investment of capital in manufacturing, and an almost certainty that any amount of such investment will prove profitable.

C. H. Mitchell & Co., 105 Michigan street, Chicago, Ill., are doing a fine business in hoisting machinery, to which they exclusively apply the mechanical resources of their large works. The members of the firm are thorough practical mechanics. Their apparatus is adapted to hand-power, steam and hydraulic pressure, and we would advise manufacturers requiring hoisting apparatus to at once apply for Messrs. Mitchell & Co.'s illustrated circular and price list. The elevators they turn out are warranted by them to give complete satisfaction, and the prices are extremely moderate. The absolute safety of these elevators and the ease with which they are operated, constitute additional recommendations.

MECHANICAL RECEIPTS AND ITEMS.

To Anneal Steel.

One method of annealing steel that is said to produce satisfactory results by those who practice it, is to pack it in an iron box, filling the box with sawdust, covering the top with a layer, over half of an inch thick, of steel cuttings from a lathe, milling machine or any tool that produces fine chips.

To Jacket Steam Pipes.

Take a few strips of hoop iron, to the lower part of which strips of wood are secure, fastening the same in a position parallel to the longitudinal axis of the pipe by fastening their two ends over at right angles, and firmly screwing these ends between two adjacent flanges. The frame work thus obtained around the pipe is covered by a sheet of roofing paper, with the exception of three inches near the flanges, which are left free to permit easy access to the screws. The space thus left is filled with felt. Pipes so covered have endured 13 years' exposure to weather without repairs. The method is cheap, easily applied, reliable, and it possesses the advantage of being very light.

The McKay Patent.

A new impetus will be given to the shoe business by the expiration of the McKay patents, which took place Aug. 15. The machines will now become the property of such of the manufacturers as pay $250 each for them, and hereafter it will be open to any one to make or use them, as first contrived, without any tax or hindrance whatever. As they can be constructed and sold profitably for about $7 each, it is expected that their use will become still more general. Estimating that the annual product of the shoe manufacturers of the country of late years is equal to 50,000,000 pairs, the royalty exacted of them for this machine has been equal to $1,000,000 a year. The relief from this tax is a substantial gain to the people, and the free use in the future of the machine at a comparatively small cost, will probably lead to a large expansion of the production.

Connecting Rod Brasses.

In quick running engines the brasses should be fitted metal to metal, or if this is not desirable, several strips of tin or sheet brass should be inserted between them and then keyed up tight. This gives a rigidity to a joint which is difficult to secure when the brasses have a certain amount of play in the strap.

Gold Lacquer for Metals.

Dr. Kaylar, in Polit Notizblatt, recommends to color an alcoholic solution of shellac with picric acid, and to add one-half per cent of boric acid. This forms a very beautiful and durable surface.

Cutter Head for Lathe.

A patent has been taken out for a rotary cutter-head with inclined checks adapted to receive the cutting knife, and provided with a detachable face-cap having inclined sides forming a continuation of the checks.

Filing Taps.

In making a tap, when it is necessary to file a clearance in the threads, it will be found of advantage to heat it until it becomes blue before filing, the difference between that color and the newly filed portions being an excellent guide in the filing. This will apply to reamers and many other tools.—*American Machinist.*

Rule for Cutting Screw Threads on Engine Lathe.

A correspondent of the *American Machinist* writes: I am working daily on a Pratt & Whitney lathe, and I make the calculation mentally, and in less time than I can take down the index, which is glued to a board and hangs on the wall over the lathe. Example: I want to cut fourteen threads to the inch. My lathe has a lead screw, with six threads to the inch, but it is double geared in the head stock, so I call the 6 12, thus: 12x3½=42 for stud, and 14x3½=49 for screw.

THE American Express Company has introduced into New York the system of harnessing three horses abreast, after the fashion of the London omnibuses, not only because the loads are frequently too heavy for two horses, but to enable the drivers to make up for lost time with an increased rate of speed, when from any cause they are delayed at the start.

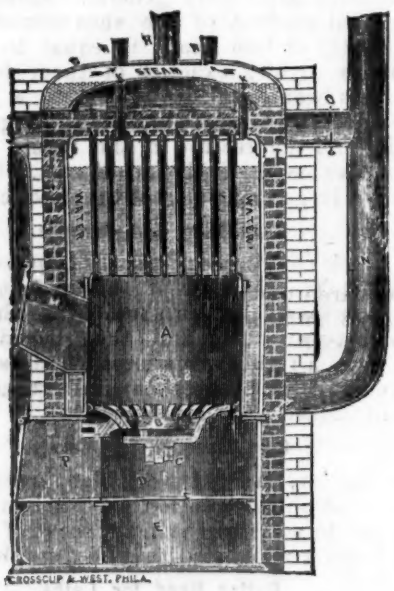
EUREKA STEAM HEATING CO., ROCHESTER, N. Y.

Manufacturers of the

CELEBRATED EUREKA BOILER,

DIRECT, INDIRECT AND WINDOW RADIATION.

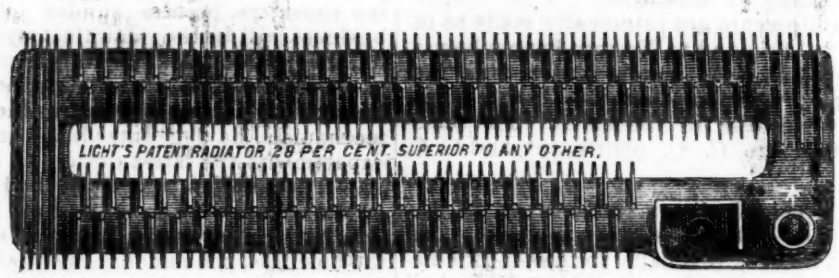
The progress of scientific and mechanical improvements for the application of steam for heating purposes was comparatively slow until recent years. The wide scope offered to successful inventors has had, however, a stimulating effect. The advantage of steam as a vehicle of heat is apparent, but among the claims put forward by rival manufacturers the public need guidance, and we feel we do a general service in directing the attention of the trade to the Eureka Steam Heating Company, of 202 State Street, Rochester, N. Y., who occupy a prominent position in this line, more especially in the west, south-west and middle States, by the success they have achieved in their low pressure steam heating apparatus. We may premise that through improvements introduced by Major H. E. Light, both in construction and the securing of the most extended degree of heating with the am plest ventilation, and this by indirect radiation and low pressure steam generating apparatus, they take the lead in the United States. Major Light, who is a practical mechanic and good draughtsman, has made steam a life study, He brought the system of heating to comparative perfection in his former manufactory at Westfield, Mass., transferred four years since to Rochester. The economy of operating and the superb ventilation secured are in favor of Light's system. We present below a sectional view of the Company's Low Pressure Steam Generator, front to rear:



The main steam feed pipe is at the top; the automatic regulator to the left. Fire and steam are increased or reduced by adjustment of weights; the same volume and pressure of steam is maintained at will as long as desired. The waste or blow off attachment for discharging water from the boiler or clearing it of sediment is below the inlet to the boiler. There is a complete arrangement for cleaning the boiler flues, and the recesses in and around the boiler. Not only are the whole of the inside surfaces fire surfaces, but the outside surfaces are saved from chilling exposure to the air, being turned to the fire. The supplemental steam chamber renders the steam it delivers dryer and stronger than it otherwise would be, besides causing it to circulate more rapidly. There is a clear space on the steam chamber for leading out the supply pipes, an advantage over vertical constructions. The arrangement of the cast iron base is admirable, and the grate embodies important conveniences. This patent fire grate is a shake and dump grate, which allows of its being easily cleaned without losing the fire. The Company has issued an extended and most convenient list of dimensions of the different parts of its boilers and connections, according to number or size of boiler, stating number of cubic feet each roller will carry radiation for. Whilst assuring thorough construction, the Company undertakes to supply the public at as low prices as those at which any equally good work is obtainable.

Pure air being a necessity of health and even life, the excellent ventilation secured by the Company's Radiators is a strong point in their favor. How to obtain it with steam heating apparatus has been the great difficulty which has baffled much engineering ingenuity. In applying the conditions of rendering the air comfortably warm and diffusing the warmth equally, Major Light has proceeded on the principle that the air must come in contact with moderately heated surfaces of not over 200 degrees of heat; when admitted at this heat it rises to the ceiling, and diffuses itself in uniform strata, which, as other strata rise, pass downward. The adjustment may be so made as to change the air of any building as often as once in twenty minutes. In addition to more uniform results with indirect radiation, the heat is more quickly turned off and on; and it is less expensive and free from the odors of direct ventilation; the system is also the cheapest, and the air is more thoroughly manipulated, and though passing in larger quantities, is warmed more evenly than by any other system. In addition to manufacturers, the system of indirect radiation is recommended by Superintendents of Public Schools. The Board of Education of Jamestown, N. Y., who got No. 15 boiler, for a large four story building that had been imperfectly heated, affirm that it did its work perfectly in heating a total of 248,628 feet with a saving of 52.4 per cent; and that the fires can be left to keep up steam seven to eight hours at a time. Unlike other boilers and radiators, those of the Company require no skilled supervision.

We illustrate in the accompanying plate the Circulating Radiator, all-thread connection, for



full size of stack, showing connections, feed, drip pipes and vent valve connections. A glance is sufficient to satisfy one of its strong radiating surfaces. This is, in fact, the only real positive circulating Radiator, from feed to vent, the full size of the stack, on the market; and if properly set no condensation can stand in the way of the steam; there is also less metal to the square foot than to other radiation, its construction being such as to give a much stronger radiation of heat to the square foot. The air feed through this radiation is ample and the peculiar arrangement of the surfaces is such whilst the air is thoroughly and evenly warmed.

The Direct Radiators made by the Company are well worthy the attention of all members of the trade. The large diameter of the tubes facilitate the ready circulation of the steam. Water cannot settle at the base owing to its peculiar and special construction, and it relieves through feed valves or return as desired. Each tube being independent there is no strain to joints from expansion, and it has a greater amount of radiating surface in the same floor space than any other radiator. The extended surfaces act as deflectors. throwing heat to the floor—results not attained by ordinary radiators.

No system of iradiation brought forward has had the success of that of indirect radiation with which the Eureka Steam Company is identified. Their radiators show a gain as compared with others of 28 per cent. The testimonials before us from large firms well known throughout the coun try are that for years these have not only afforded complete satisfaction but have accomplished more than it had been thought any system was capable of realizing. The superior construction of the improved radiator, the ease which which it can be put up, the thorough ventilation afforded, and, in short, the complete manipulation of the air are strongly dwelt on, and in many instances where parties have already in use thousands of feet, additional orders are promised. The Company has done the right thing in printing in circular form these testimonials, so that we may know what actual users think of their Radiators. A good and useful invention fairly put before the public never fails of appreciation, and as there is no assignable limit to the use of the Company's Radiators, it is not surprising to learn that the sales last year to the trade were 60,000 or 64 per cent larger than in any previous year, and so far this season, we understand, the increase is in an even greater ratio. The excellence of the Eureka Boiler and the Radiators, and the reputation achieved by the Company for first class mechanical constructive work, with the enterprise manifested in pushing its inventions, assuring to it a long and prosperous future, renders it matter of regret that at the time when the advisability of locating the works in Cleveland was under consideration, the decision was not in favor of this city, though if special inducements had been held out, and sites not been so costly, we have reason to believe the result would have been otherwise.

The Company employs 40 hands. In anticipation of the accumulation of orders in 1880 it largely added to its facilities of production, and for 1881 it doubled the capacity of its foundry and machine shop. This season's business was accordingly commenced with 150 per cent more stock in hand than a year ago. To one firm in Milwaukee they shipped last season, as shown by a communication before us, 76,000 feet of radiation surface, the largest transaction in this country in this line in one season to any one firm. They ship to Chicago, Cincinnati and the large cities of the west, and to the Territories as far as the Black Hills. The demand was never such as now for low pressure heating boilers, the trade generally being satisfied that these are superior to any other and obtaining ready sale for them. A single order made for stock for this season's business was for 115 boilers. The Company has shipped recently boilers to Jackson, Detroit, Grand Rapids, Michigan; St. Louis, Mo.; Cincinnati and Wellsville, O.; Newport, R. I.; Troy, Little Falls, Syracuse, New York City, N. Y.; Titusville, Bradford and other Pennsylvania towns. They are now filling orders for Wheeling and a number of other cities.

REFERRING to the frequency of heavy fires among the wood-working establishments of Cincinnati, the *Chronicle*, a New York Insurance journal, says: "The general unprofitableness of underwriting this class of hazards, has induced a number of companies doing business there to cancel, and others to notify their patrons that renewals would not be written. The Cincinnati *Commercial*, of Saturday last, gives the following record of losses and premiums incurred and received on wood-working risks alone in that city since the beginning of the year, and says that the figures are reliable:

Loss on buildings	$116,366.93
Loss on stock	203,071.89
Loss on machinery	140,587.70
Total	$460,026.41
Aggregate premiums received	125,000.00
Net loss to companies	$235,026.41

The same paper strongly urges needed reforms in building and the providing of factories with proper facilities for fire extinguishment, and says: 'A meeting of the board of underwriters will soon be held to consider the advisability of advancing the rates on this particular character of risk.' The existing average rate is not far from three per cent, and the desire among the underwriters is general for an advance to four per cent."

THE new metal of which it is proposed to construct pipes in which to lay telegraph wires under ground is described as very light—only about one-sixth the weight of iron—and, being composed almost entirely of pure carbon, is indestructible, whether in the air or under ground; it does not rust or change by exposure, and is not affected by heat or frost. The most important characteristic claimed for it, however, in connection with underground wires, is its being a perfect insulator. The pipes of the metal need not, it is stated, be buried very deep in the ground, as they may be of a semi-elastic character, thus resisting frost upheavals.

THE NOBLE SEWING MACHINE COMPANY.

Erie, Pa.

Having had occasion a short time since to visit the thriving city of Erie, Pa., we were interested to learn that the manufacture of sewing machines had become one of the leading industries of the place. Taking advantage of a little leisure we visited the factory of the Noble Sewing Machine Company, situated on the corner of Eighteenth and Plum Streets, in the western part of the city and directly on the line of the New York, Chicago and St. Louis Railway, now being rapidly pushed to completion. The President of the Noble Company informed us that they intended running a switch into their premises as soon as possible to secure additional shipping facilities, as from present indications they will soon be compelled to run the factory over time to supply the rapidly increasing demand for their new machine. This machine, they claim, embodies more desirable features than are found in any other. It is large, light running, and made of the best material, by the most skilled mechanics that money can procure. Our inspection satisfied us that there are very ample grounds for the claim put forward in its behalf. The machine embodies a very simple system of eccentrics, which give motion to the shuttle and feed. The needle bar is driven, as in other machines, by a cam and roll, but differs from the majority in using a steel cam thoroughly hardened instead of the usual cast iron affair, thus insuring the highest degree of durability. The needle bar, shuttle, and in fact all parts likely to wear, are thoroughly hardened and provided with means for taking up the wear of many years. The shuttle is cylindrical and made from a solid steel bar, is self-threading, and arranged so that the tension can be changed without removing it from the machine. The bobbin is very large, carrying from ten to fifteen yards more thread than any other machine. The take-up is self-regulating, and by a very neat device, invented by the Superintendent of the Company, Mr. Geo. A. Mayo, adjusts itself to different thicknesses of goods. We consider the automatic fly wheel sent out with this machine a very valuable feature, preventing the breaking of needles and thread by starting the machine backwards. With this wheel the machine can is still if the treadle is started in the wrong direction, and in winding the bobbin it is unnecessary to remove the work from the machine, as by simply reversing the motion of the fly wheel bobbins can be filled without running the machine.

The japanning and ornamenting is of the most superior character. Every machine receives three coats of the very best japan before being varnished. The tension, shuttle slides, presser bar, lifter, presser foot, hemmer and fly wheel are nickle plated, to prevent rust, and add to the fine appearance of the machine. The stand of the New Noble is very neat and tasteful in design, and has a large treadle or foot piece; the balance wheel runs on hardened steel centers, and has inside crank—thus obviating one of the weakest points of the old style machines (the wear of balance wheel studs). In reply to our inquiry, the President of the Company, Mr. Geo. H. Noble, informed us that his first venture in the sewing machine line was in October, 1879, when he purchased the entire Whitney Plant, then in their factory at Patterson, N. J., removing it to its present location in December of the same year. The machinery was set up and put in operation in April, 1880, on a small machine known as the Patrons of Husbandry, which the Company have manufactured quite extensively for the Grange trade. Finding this trade insufficient to run the factory to its full capacity and not wishing to put the Grange machine in the hands of agents, the conclusion was finally reached to manufacture a new machine of the latest and most improved description. After an impartial trial of many model machines the present machine was adopted, and a large force of the best mechanics in the country put to work January 1st of the present year. Additional buildings and extensions, and tools and fixtures for the manufacture of the new machine involved a large outlay; the tools are of the most improved patterns. Special machinery has been supplied. Though delayed for some time by the moulder's strike and the consequent difficulty in procuring stock, the first machines were placed on the market about the 1st of July. Since that time the company has used every effort to increase the capacity of the factory, and are now turning out twenty-five of the new machines per day, expecting to double the production within 60 days. The Company furnishes a complete set of attachments with each machine sold, and offers the New Noble on very reasonable terms. They also propose to protect their agents in their territory. Every machine built by them is fully warranted for five years from date of sale. The cabinet work used on this machine is equal to any that can be had, and is of the latest and best styles. Agents in unoccupied territory who desire to handle the latest and best machine made should address for terms, etc., Noble Sewing Machine Company, Erie, Pa.

RAILROADS AND TRAFFIC.

UNDER the new system adopted by the Central Hudson road, giving three conductors to four trains, they are obliged to run from 300 to 500 miles continuously with little or no rest or sleep. In this exhausting weather the heat, motion of the train and loss of sleep are more than ordinary men can bear after a quarter of a century's shaking up on the cars. The old men are gradually breaking down and drawing out and the younger men to take their places who will soon become prematurely old and laid upon the shelf. *Puck* hits the new system of railroading admirably when it pictures a railroad man placarded with badges of duty, representing him loaded with red and white lights, checks, danger flags, and signals, for upper and lower crossings, time tables, codes of signals for the time of passing trains and telegraph report records, keys to the gates, cars, switches, water tanks, shops, oil, baggage, men's, ladies' baggage and freight rooms, mail bags, express boxes, brooms for sweeping and snow shovels, torpedoes, tickets, etc., etc., all for $1.67 per day. Once in a while the overtaxed men go to sleep on the track, leaving switches open, and trains go to smash, lives are lost, limbs are mangled, and the economical managers charge up $40,000 to be gathered up by semi-annual reduction on the employes' wages. Railroading is a great business for wearing men out and leaving their widows poor. Who will have the next job?—*Utica (N. Y.) Herald.*

A SPECIAL meeting of the stockholders of the Valley Railway was held at the office of the company, in this city, on the 30th ult. Of the 14,508 shares 8,039 were represented. President J. H. Wade, Vice President S. T. Everett, Stockholder D. L. King, of Akron; C. E. Holden, of Mineral Point; L. V. Bockins, of Canton: Moses Bachtel, of Sparta, and James Conrad, of Boston, were present. The project that has already begun to extend the road from Canton sixteen miles to connect with the Wheeling & Lake Shore road, to build branches to the two coal shafts and a stone quarry, and to continue the line in this city across the river to a point on the Lake Shore, was approved with but little opposition. The purchase of additional rolling stock was also authorized. To meet these expenses it was resolved to take up the $,600,000 bonds now outstanding and issue consolidated bonds to the amount of $7,000,000, to be secured by a mortgage on the property of the road extending from Cleveland to Martinsville, Belmont county, on the Ohio river. The bonds will be payable the 1st of September, 1921, in gold, in New York City. The sixteen or eighteen miles of road now building by the Valley south of Canton, to the Wheeling & Lake Erie road, is of considerable importance to the city of Cleveland, as it will form another direct line to Wheeling and open up another valuable mineral territory.

THE ten bids for the lease of the Cincinnati Southern Railroad for twenty-five years are noteworthy. Three ignore the advertised terms, one of these being apparently a proposition to buy for $20,000,000, and this, the *Gazette* asserts, was put in, simply to give an excuse for kicking the whole thing over. The formal bids range from $19,500,000 to $26,070,000, but the Seney Syndicate make the best offer, $30,775,000, although it is informal. Another excellent informal bid is an offer to pay a fixed rental of $500,000 per annum, and also to pay twenty-five per cent. of the gross receipts in excess of $2,000,000 annually, said payments to be made quarterly.

VALLEY road extension to Zoar is to be built at once. The company has just made a contract with the Wheeling & Lake Erie road for through connection to Wheeling, W. Va., without change of cars.

ITEMS OF INTEREST.

SHIPMENTS of gold from Europe to this country have again commenced. About $2,000,000 is now afloat for New York.—*N. Y. Mining Record.*

THE exports of domestic breadstuffs in the seven months ending July 31st, amounted in value to $131,962,709 as against $153,586,362 in the corresponding period of 1880.

THE Kelmer Wire Band Manufacturing Company, Schenectady, N. Y., have just put in a fine 40-horse power engine made for them by Harmon, Gibbs & Co., of Corry, Pa.

THE expense of the great Cotton Exposition at Atlanta, Ga., will reach a high figure. To run the machinery will require not less than two miles of shafting, and all sorts of novelties in the manufacturing line are to be shown.

"YOUR meal is ready, sir," said the waiter to Hayseed, just from the rural districts. "Meal!" exclaimed Hayseed, contemptuously; "do yer think I'm a hoss? Get me some corned beef and cabbage, young man!"—*Boston Transcript.*

THE *Industrial South*, the fourth number of which has reached us, is *par excellence* the representative of the new era that has dawned upon the South. It takes account of all current facts bearing upon mechanical and mercantile pursuits.

WE feel very doubtful whether it is possible to purchase a genuine article of fruit jelly. Every specimen we have been able to examine has contained gelatine, colored with some common dyestuff and swectened with artificial sugar made from corn by the sulphuric acid process. Those who want a pure article of jelly will have to make their own.—*Microscope.*

A NUMBER of the large cotton houses of Memphis, Tenn., have formed a company for the purpose of building and operating a compress, elevator and warehouse for cotton storage, and to that end have purchased sixty acres of land lying along the river front. These houses represent 300,000 bales of this year's crop, and financially are equal to any amount necessary to carry out their object.

POSTAL cards were first issued to the public on May 1, 1873, and during the first year 110,000,000 cards were sold. An analysis of the number printed each year since their introduction shows their great popularity. In 1874, for instance, the number issued was 91,000,000. Four years later the number sold was more than 200,000,000, while the figures for the last fiscal year reach nearly 300,000,000, which, estimating the population of the country at 50,000,000, is about an average of six cards for each person.

ONE of the best sources of information as to crops, says the Chicago *Tribune*, is hermetically sealed to the public. Through the summer all the leading Western railroads receive tri-weekly, and in critical times daily reports about the condition of the crops from their station agents along the lines. These employes are required to keep themselves thoroughly posted, and to communicate results by telegraph. The news thus obtained is collected at the central offices, and gives the leading officials as well as directors and principal stockholders the most complete resume that could possibly be obtained of crop facts. Instant dismissal would be visited upon any official of these companies who should be detected communicating this valuable knowledge to any one not in this managing coterie.

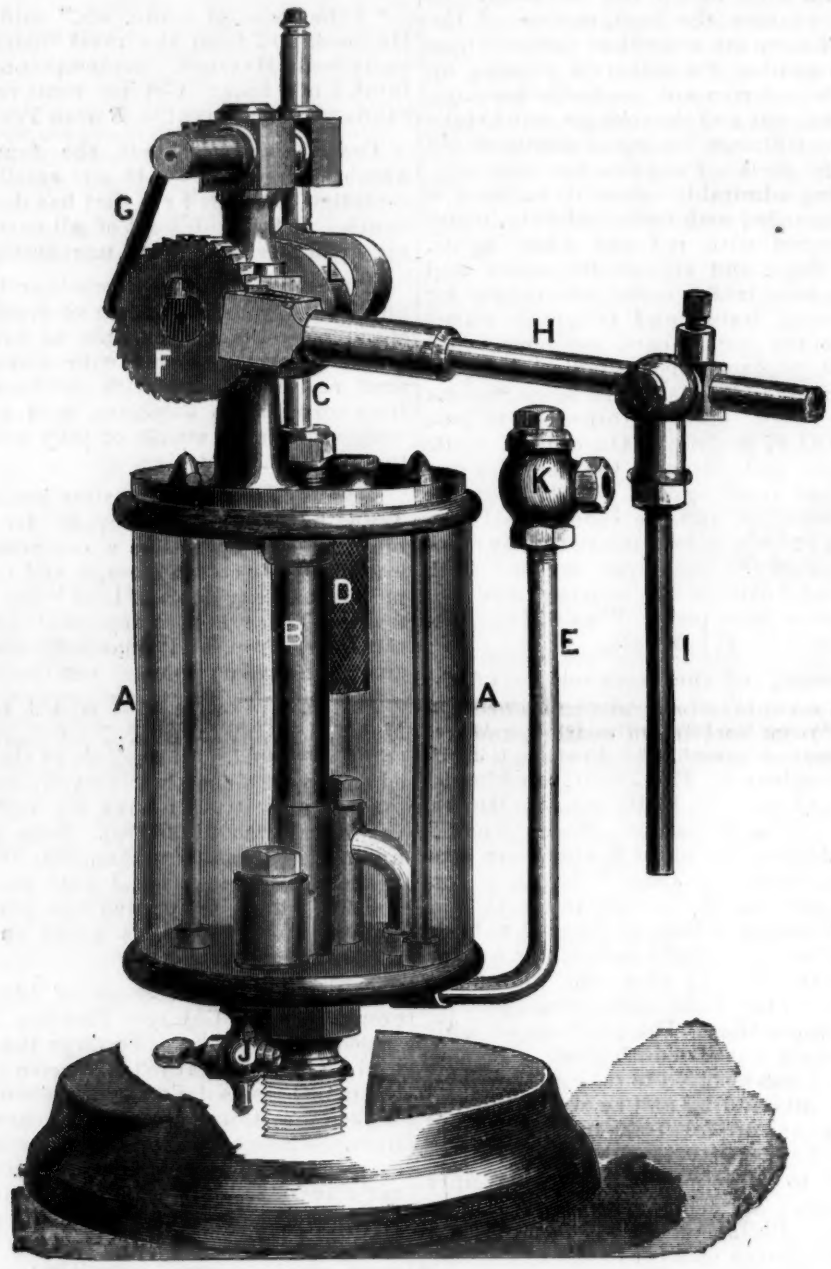
THE average depth of the Michigan salt wells is 881 feet, while those of New York are but 224 feet, but the strength of the brine in Michigan is 91¼ degrees salometer, while New York brine is but 69½ degrees. Virginia wells are but 262 feet, with a brine 85 degrees in strength. Ohio labors under the disadvantage of deep wells 902 feet, with brine of but 36½ degrees in strength. Utah salt, obtained from Utah's great lakes, are 8¾ degrees stronger than Michigan. The capital invested in the salt business is, according to the census, 8¼ million dollars. The processes by which the salt is obtained are by solar evaporation: From sea or bay water, 888,968 tons; from inland lakes or natural deposits, 944,158 tons; from subterranean brines, 3,998,000—4,831,126 tons; by artificial heat from subterranean brines by kettle or pan process, 8,853,821 tons; by steam evaporation, 16,115,351 —24,969,172 tons. Total, 29,800,298 tons.

MOSES' PATENT AUTOMATIC STEAM CYLINDER LUBRICATOR.

WILLIAM MOSES, Patentee.

Buffalo, N. Y.

Lubricators in general, with the special features of the various classes into which they are divided, have formed the subject of a series of articles in the Trade Review, and as an appropriate sequel we have the pleasure of bringing before our readers the most convenient and effective lubricator known to engineers and users of machinery in general. This is Moses' Patent Automatic Steam Cylinder Lubricator, called after the name of the patentee, Mr. William Moses, of Buffalo, N. Y. The following engraving with the explanatory description appended, affords a complete insight into the construction and action of the Lubricator



in question. A, is the glass receptacle for holding lubricants; B, barrel of oil pump; C, plunger of oil pump; D, strainer for pouring in lubricants; E, discharge pipe from pump into steam pipe; F, ratchet wheel for motion; H, lever regulating motion; I, connection rod to any reciprocating part of the engine; J, faucet to draw oil from receptacle; K, check valve between pump and steam pipe; L, crank and yoke giving motion to plunger.

Many of the devices for lubrication in the market have evidently not been the work of practical engineers, whilst many vaunted improvements have really been only improvements on what was inherently defective, proving neither satisfactory in working nor economical in the use of the oil. Mr. Moses, the patentee of the Automatic Steam Cylinder Lubricator, known as Moses' Patent, has not only been a practical engineer for a quarter of a century but an engine builder; as such he was watchful of defects in other lubricators which he had occasion personally to use, and laying hold of the right principle, had also the mechanical skill to advantageously apply it, We have ourselves had occasion to see it frequently in action, and appreciate his further statement that his invention is the outcome of long and laborious study. It is one thing to ascertain a principle, another to discover the means towards the desired end.

The automatic pump is the leading feature of this invention. The pump, as will be seen by reference to our illustration, is operated by a small connecting rod, which may be attached to any reciprocating part of the engine. The throw of lever of pump need not exceed one and a half inch. The positive action assured is self-evident, the lever H regulating the motion. The action of this lubricator depending on the pump, it is important to note that its construction is of a most substantial character, and that the best mechanical skill has been obtained to secure unexceptionable workmanship. It is no more calculated to get out of order than the engine itself,—in fact, less so, and thus absolute dependence can be placed on it. It is not desired that any lubricator should save more oil than an engine requires; but Moses' Patent Automatic Cylinder Lubricator can be relied on for supplying the exact quantum needed, and this with unfailing regularity.

Mr. Moses in proceeding to supply the requirements for an automatic lubricator that should be faultless in action, supplying oil with mathematical accuracy at each stroke of the cylinder, and which should prevent the slightest degree of waste, proceeded on the ground that "the only true and practical way to lubricate steam cylinders, when in operation, is by a pump which will feed regularly, and at the same time positively and in quantities to suit the work performed." We here quote from his own statement, and any competent individual examining the action of his lubricator will see that this *ideal* is fully realized. We quite with the invariable result of allowing engines to work freely and smoothly and with less oil, as testified to us by engineers in charge, and with more satisfaction than any lubricators with which they had to deal.

The effect of the adoption of this Lubricator, the only one in our own extended experience which answers every requirement and affords perfect satisfaction, is to bring about, as stated in the circular of the patentee, a great gain in the improved and steady work of the engine. It is an important advantage in the use of this Cylinder Lubricator, that the operation of the pump can be viewed, a portion of the cylinder part, or pump case, being made of glass. Thus any defective action could be at once detected. The capacity of the receptacle is over one quart. The pump admits of being placed at any convenient point where the motion can best be reached. In connecting discharge pipe from pump to steam pipe, between the boiler and throttle valve, and as near the throttle valve as possible, the engineer to secure proper action, must be particular in placing it. Mr. Moses has just completed a spring valve in connection with his Automatic Cylinder Lubricator, specially adapted for locomotives, which is destined to make it the most perfect lubricator ever used on these. In short, there is no limit to its application wherever steam is used and lubricants are required. It relieves those having the care of engines of much anxiety, and will prevent endless wrangle in manufactories and elsewhere arising from apprehended carelessness in the use of oils. The regularity secured to the working of the engine renders it of incalculable value if applied to the tens of thousands of engines throughout the country. We would say to manufacturers, so convinced are we of its merit, that they will consult their self-interest by its adoption.

Among the selected testimonials that have been published relative to the faultless action of the Moses' Lubricator is one from the engineer of the Buffalo Water Works, in which he says that he has used this Lubricator for the past three years, and cheerfully recommends it as sure and reliable, and a sure means of saving oil, as the engineer can regulate it at will. He adds that it is positive in its motions. Mr. R. Doty, chief engineer of the Cleveland Water Works, declares that the simplicity of this Lubricator recommends it to *the most critical observer*, than which no stronger language can be used. He considers it will take the place of all which are dependent upon certain conditions, as cold water in the pipe for head to force the oil out, or the direct admission of steam, as many are now doing, all of which he views as objectionable. It would be injustice to Mr. Moses not to insert the valuable testimony of the engineer of the Cleveland Rolling Mill, that it saves at least one-quarter of the oil compared with the old methods of oiling, and lubricates the engine more regularly than any machine he has ever tried. The testimony of chief engineers of water-works, elevators, and machine shops of note in various cities is to the same effect. We understand that the capacity of the Buffalo works of Mr. Moses is taxed to the utmost at this time in filling orders from all portions of the Union. Its reputation spreads from its having been tested so thoroughly, and as a sure and reliable Lubricator, giving such splendid results.

The Blythe Process for Preserving Timber.

The Blythe process of seasoning and preserving timber, says a London, England, railway journal, effects a most material saving in the cost of sleepers by prolonging their life. The old process of creosoting timber, which was never completely satisfactory in its effects, practically sealed up the wood in a damp proof shell and failed to penetrate beneath the surface. By the Blythe process, carbolic and other tar acids are carried into the heart of the wood by means of super-heated steam. They there chemically combine with the component parts of the timber, so that their antiseptic qualities are exercised throughout every fiber, and not merely on the surface. During this process of steaming, the sap is completely extracted; and so thoroughly is this done that a tree felled one day can be treated the next. After the treatment the wood only needs to be allowed to cool, protected from draft, in order to be ready for use, when it will afterwards be found to be free from any liability to contract, warp, or decay. The fiber is strengthened, no smell is given off, and the wood is not made more combustible. In consequence of the great saving in time, newly imported timber can be sold at the same price as weather seasoned, and delivered in one-twentieth the time. Many millions of sleepers thus prepared are now supplied to the French railways annually.

Boiler Construction and Management of Furnace Combustion.

ART. VII.

The exact nature of perfect combustion is not easily explained. Coal is composed of carbon and hydrogen, and oxygen is tne agent by which they are made to yield up their heat. Both the carbon and hydrogen in coal have an affinity for oxygen. Before they unite it is necessary that certain conditions be fulfilled. When once coal is heated to a point of ignition, the oxygen, having the strongest attraction, will unite with it first. It first unites with the hydrogen and sets the carbon free. Innumerable solid particles of carbon thus scattered in the midst of burning hydrogen are raised to a state of incandescence. The carbon, however, in due time closes with the oxygen and becomes carbonic acid, which is the product of perfect combustion. Ordinary rate of combustion may be placed at say fourteen pounds of fuel per square foot of grate, with natural draft. The conditions necessary to consumption may thus be enumerated. A certain temperature must be maintained in the furnace, irrespective of the condition of the outside atmosphere. For anthracite coal the ordinary rate of combustion under stationary boilers may be taken at from eight to sixteen pounds per square foot of grate per hour; for bituminous coal from ten to twenty pounds. The temperature of combustion is conditional upon the nature of the fuel burned, the nature of the products of combustion, the quality of the products of combustion, and the specific heat of the gases present in the furnace resulting from combustion. This includes the quantity of air present at the moment of combustion, in order to render it complete. The principal products in the furnace after the combustion of coal are: carbonic acid, carbonic oxide, nitrogen, air furnished in excess and unconsumed, and gaseous steam. The temperature of furnaces when complete combustion is created is 326° Fahrenheit. Smoke is regarded as a product of incomplete combustion. In its widest application it is made to include all the products of combustion issuing from the chimney. If the combustion of coal were perfect, the escaping gases would be invisible. When a charge of coal is thrown on the fire, the effect of the heat is to detach small particles of coal from the surfaces most rapidly heated. These particles are generally very small, and, in consequence, weigh so little as to be easily carried over the fire and up the chimney by the mechanical agency of the draft alone. If the high temperature of the furnace can be maintained at the same time a fresh charge is thrown upon the fire, the carbonic acid would entirely dissolve all the sooty carbon present in the flue, and convert itself, by this additional carbon, into carbonic oxide, which may then, by a proper supply of heated air, be reconverted into carbonic acid by the addition of another equivalent of oxygen. This result is easily obtained by using the proper style of furnace. The source of oxygen as a supporter of furnace combustion is atmospheric air. The pressure of the atmosphere is one of its most important properties, not only in the ordinary economy of nature, but as a mechanical agency in producing draft in the furnace. The measured quantity of this pressure is found to be equal to a column of mercury having one square inch of area by thirty inches in height, or taking the weight of the atmosphere, subject, however, to changes of temperature, humidity, etc. In all ordinary calculations it is assumed that thirty-two feet of water, thirty inches of mercury, or fifteen pounds equal the pressure of the atmosphere. In common practice, the amount of air required for furnace combustion is about three hundred cubic feet or twenty-four pounds of air to one pound of coal. The chemical affinity of heated air for carbon is much greater than that of cold air. The condition under which coals are burned are so various that no exact quantity of air can be specified which will supply oxygen enough for complete combustion, and still preserve the minimum dilution of gases passing from the furnace into the chimney. One pound of hydrogen gas requires eight pounds of oxygen for its complete combustion. This requires about thirty-six pounds of air to furnish it. While heating the air for combustion intensifies the chemical affinities between the air and the fuel, the process offers another most effective means of diminishing the consumption of fuel and of almost indefinitely increasing the intensity of the fire.

TO BE CONTINUED.

MISCELLANEOUS RECEIPTS.

TO BLACK IRON AND STEEL.—A brilliant black is produced on iron and steel by applying, with a fine hair brush, a mixture of turpentine and sulphur boiled together. When the turpentine evaporates their remains on the metal a thin layer of sulphur, which unites closely with the iron when heated for a time over a spirit or gas flame. This varnish protects the metal perfectly, and is quite durable.

TO MAKE A GOOD AQUARIUM CEMENT.—A good cement is composed of 3 oz. linseed oil, 4 oz. of tar and 1 lb. of resin. These are allowed to melt together over a gentle fire. If too much oil is used the cement will run down the angles of the aquarium; to obviate this, it should be tested before using by allowing a small quantity to cool under cold water, and if not found sufficiently firm, allowing to simmer longer, or have more tar and resin added. The cement should be poured in the angles of the aquarium in a liquid state, but not when boiling, or it would most assuredly crack the glass. The cement will become firm in a few minutes, and the aquarium may then be tilted up in a different position while a second angle is treated likewise. This composition adheres firmly to the glass, is so pliant that it may be pressed into any shape by the fingers, and it does not communicate any poisonous quality to the water.

TO DOUBLE GLAZE WINDOWS FOR COLD WEATHER.—Skylights ought never to be put up unless double or double-glazed. Double glazing answers perfectly if the sashes are grooved out for glass on each side, and are then glazed with an air space of one-half inch or more between the panes of glass. The glass must be put in with its inner faces perfectly bright and clean, and the glazing should be done on a cold dry day so as not to include watery vapor, which, in cold weather, will condense inside the air-space and cause mistiness. This double-glazing with air space makes a window almost as warm as a brick wall, and not only keeps up the temperature of a room in winter and saves firing, but it keeps the room cool in hot weather, and it makes the temperature more uniform throughout the apartment.

BEAUTIFUL SUBMERSION PICTURES.—A very beautiful experiment may be performed with the aniline red ink which is now so commonly in use. Take a long cylindrical glass vessel, or one with parallel sides, fill it with water, which is allowed to settle, and then gently deliver a drop of the red fluid to the surface, the drop begins to contract, and slowly from its center descends in the form of a tube. The denser parts of the coloring-matter presently form a thick circular rim at the end of the tube; but this is only for a moment, for a wavy edge appears upon this rim, then expands into a triangular parachute with a thickened edge, and from the extremity of each corner two or three smaller tubes descend; these in like manner pass through the same phases as the parent stem or tube.

TO REMOVE OLD PAINT FROM CARRIAGE PARTS.—Take equal portions of sal-soda and quicklime, and with water mix them into thick paste. Coat the work with this, allowing it to stand about an hour, when it must be thoroughly washed off with water. This is a speedy method of removing old paint, but it must be used with caution. That is to say, the coating must be removed at the instant that solution has taken place, otherwise the wood will be furred up and alkali deposited in its fibres to the subsequent detriment of the painting.

TO PRESERVE THE COLOR OF BRASS ARTICLES.—Apply a thin coating of collodion. It will not give the appearance of the surface being varnished.

TO MAKE A SILVERING POWDER.—Nitrate of silver, 13 grains; common salt, 30 grains; cream of tartar, 200 grains; mix. Moisten with water and rub on the article with wash leather. Gives a white, silvery appearance to brass, copper, etc.

The "Domestic Tyrant."

"The average man," quoth Mrs. Partington, is a weak and irritable domestic tyrant," and Mrs. P. is correct. Tyrannical to a fault the average man will enter the blissful Paradise of a happy home, scratch himself with fiendish glee, send the baby into convulsions, and for what? Why, because he he has the Itching Piles, and is too mean to buy Swayne's Ointment, which is an infallible cure for the worst cases of that annoying complaint.

Enterprise of Our Manufacturers.

The following is from the oration of George B. Loring at Boston on the occasion of the exhibition of the New England Manufacturers' and Mechanics' Institute in that city: "For our agricultural enterprise, as you all know, I have the most profound admiration—for its abounding products which now enters into the markets of the world, for those teeming lands which supply with food the busy communities which we represent on this floor, for those fertile savannas and plains whence we derive the raw materials for the business of our thronged and thriving towns. But I cannot forget the stimulus every acre of cultivated land in America has received from the enterprise and energy of our manufacturers; nor can I close my eyes to the accepted agricultural law of our land, that the farming most truly in accordance with the spirit and genius of American social and civil life is that which consists of a careful cultivation of the earth for the supply of a neighboring market, with all its opportunities for mental and moral culture * * *. For one, I cannot contemplate with composure the desertion of our manufacturing towns, the silence of the spindle and the forge, the death of our mechanical industries. I know their value in peace and in war, and I leave it for those who are accustomed to other modes of state and society, and have been led to accept other results, to invite their abandonment and coolly consider their destruction. This exhibition, Mr. President, which you and your associates have arranged with so much care and skill, belongs to an important and influential class of the educational institutions of our time. Unlike those early fairs which attracted the merchants of their day, and where the great commercial markets in England and France, from the earliest period down to the close of the eighteenth century, unlike the monstrous trading assemblies which annually gather for trade alone at Nijni-Novgorod and Sinigaglia and Leipsic, it belongs to that modern system established for rousing the ambition, and cultivating the taste, and conveying the information, which has been adopted in every civilized country where skill and ingenuity are of more value than mere commercial adroitness. Industrial exhibitions have become a part of the industrial enterprise of modern times, and have been encouraged by the most enlightened governments, and the wisest rulers.

The Degeneration of Steel.

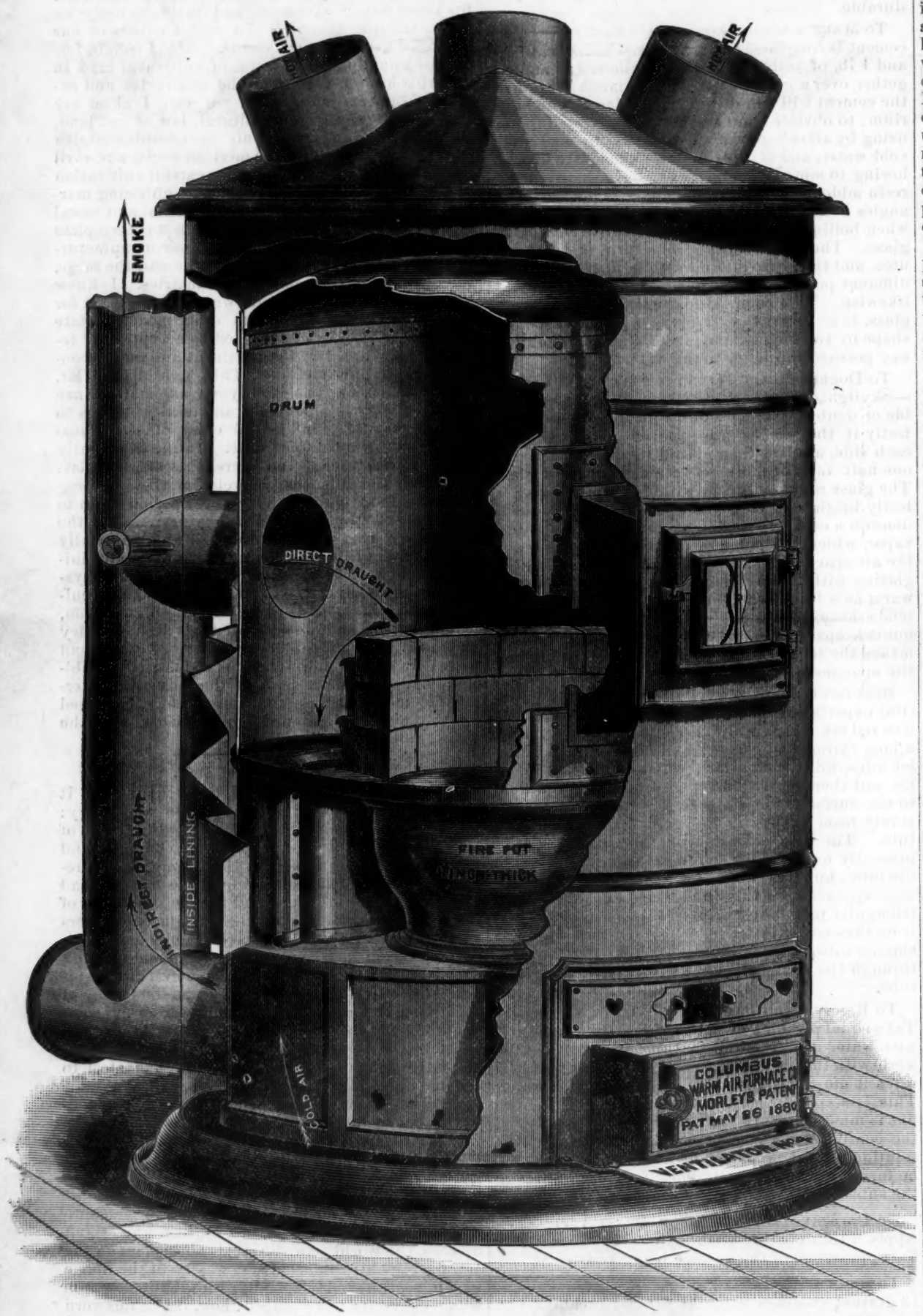
What a superb career steel has renounced. It had shaped the world; it had carved out history; it had formed the nations; it had fixed the limit of languages and the geography of character and thought; it had vanquished the strong; it had rebuked the proud; it had succored the weak; it had been the arbiter of honor and the accomplisher of justice. The sword was, as the ancient chroniclers said, the oldest, the most universal, the most varied of arms, the only one which has lived through time. All peoples know it; it was everywhere regarded as the support of courage, as the enemy of perfidy, as the mark of commandment, as the companion of authority, as the emblem of sovereignty, of power, of force, of conquest, of fidelity and of punishment. And after all this has steel to become rails. Look at what it was, and at what it it. Its aspect was brilliant, its habits were punctilious, its manners were courtly, its connections were patrician, its functions were solemn, its contact was ennobling. It lost no caste when it allied itself with lance and dagger, with battle axe and helm, for they were of its natural kindred; and even when in later times, is stooped to generate such lowly offspring as razors, lancets, knives and needles, the world saw no real abasement in the act, for the chivalrous blade was still the image which represented steel to man. But now the whole character has changed; now, it has forsworn its pride for profit, its pomp for popularity. Steel is now bursting coarsely on the earth at the rate of thousands of tons a month. It is positively made into steam-engines, and cannon, and ships, and all sorts of heavy, uncomely, useful objects. Worse than all, it is becoming cheap. Steel cheap! —the steel of legend and of story, the steel of the paladin and the chevalier, the steel of the noble and the brave, the steel of honor and of might.—*Blackwood's Magazine.*

IT is expected that foreign countries will send 600,000,000 oranges to this country this year. Florida will supply about 50,000,000.

COLUMBUS WARM AIR FURNACE CO., COLUMBUS, O.

Manufacturers of Morley's Patent Wrought Iron Furnaces and School Room Ventilating Stove.

Heating by warm air is unquestionably an advance in modern civilization; it can never be superseded, whether for churches, manufactories, public buildings, schools, or private residences. The equable warmth engendered, with facilities for regulating it, are all in its favor. In this age of economy there is evidence that the public is ready to reject, in favor of the warm air method, the wasteful, coarse and primitive methods of obtaining heat that have hitherto prevailed. But for drawbacks of a more or less serious nature to systems introduced, the use of hot air furnaces would have been much further extended. Smoke, as all are aware, is the product of incomplete combustion. A perfect system is that which will utilize all heat obtainable from the coal, and properly diffuse it.



The manufacturers of Morley's Furnaces have had 28 years experience in the construction and selling of furnaces, and in this time have handled all leading makes, thus being in an excellent position, as practical mechanics, to study imperfections and apply remedies to defects. Their improved Down Draft Base Heating Furnaces and School Room Ventilating Stoves are the result of years of thought and experiment, and an extended examination of the working of these instituted by experts, fully justifies the assertion that the Company's furnaces and stoves are perfect. The chief cause of complaint in all furnaces heretofore in use has been the smoke and dust generated, the lack of freshness and purity of the air delivered, due to the imperfect consumption of gases and coal and the cost of fuel relatively to the volume of heat, all which objections to the adoption of warm air heating furnaces they have successfully overcome. We are in a position to state how these results have been obtained First, they remove the dust which is so annoying in shaking or dumping the grate. To accomplish this there are two direct flues on sides of ash pit, working in direct connection with chimney, independent of and without going through the fire pot. These flues, by the way, also make a perfect ventilation for the cellar or room. Secondly: They remove the cause of smoke in radiator chamber by burning the gases it contains. A special feature in their furnace that it is perfectly air tight in every point, and so independent of expansion or contraction, thus preventing smoke in heating conductors and giving perfect control of draft so as to regulate fires as required. Thirdly: Economy in fuel, through having a larger heating surface than any other wrought iron furnace in the market, being a down draft base heater, with fire pot of 1 inch thickness. Entire furnace from top to base is utilized to radiate the heat. The brick set furnaces of the manufacturers are iron fronts made sectional, this arrangement allowing of their being easily removed; the entire frame may be taken from brick chamber without disturbing the brick work or pipes, an advantage that will be readily appreciated.

The means adopted for the access of air is of prime importance, and certainly cannot be superseded for simplicity and effectiveness. The system for the furnaces which are all double-acting ventilators, requires a large volume of fresh air, and this air for the furnaces as well as the stoves, is, through the arrangement of the base, conveyed from outdoors by tubes or conductors, thus not consuming the air within the apartment, and obtaining a pure supply and a constant flow, the flues at each side of the fire pot creating a continuous outward flowing current. This is done without opening the feed-door, as is necessary in the soft coal burner, a process which causes the pipes to be quickly choked with soot. The opening of the feed-door to regulate the fire involves a great waste of fuel, as cooling off the entire surface of the radiator, and occasioning too much condensing of the pipe flue, with the accompaniments of puffing and possible explosion. There is no question that if the construction is not practically air-tight, the contributories to smoke, gases and soot cannot be reclaimed until burnt without opening a direct draught, which must occasion the loss of 50 per cent of the combustion. This fact renders apparent the immense value of the double base, not only for heating surface but for control of the burning operation of the furnace. One important point is not to be overlooked. The furnaces, by means of a few changes, are adapted to burning either anthracite or bituminous coal.

Points of superiority in these over all other furnaces are that they do not smoke or emit dust or gas; they have the perfectly working patent dust flues; the patent removable grate and stand; also ventilator mouth-piece, with double cupped sand joint, with covers, and the only system of putting on cast head on wrought iron radiator that will expand tight instead of loosening. The firm manufacture five sizes from the smallest to the largest in the country. The following is their capacity in cubic feet: No. 1, 6000; No. 2, 20,000; No. 3, 40,000; No. 4, 60,000; No. 5, 120,000.

The number 5 furnace of the firm has all the advantages and late improvements, but is constructed on a different scale. The fire-pot is wholly of fire brick in square form, and feeds on the same line of the grate-bar. Size of fire-pot, 3 feet 10 inches long, by 26 inches wide. The grate has 10 horizontal bars, with apron covered with fire-brick, and upright front bars that revolve, making it very convenient for cleaning out and regulating the fire. The top is arched with fire brick. This furnace is low down, has two radiating drums upright, and has Morley's patent double base dust flues and removable grate and air-tight doors. It also has greenhouse and bedroom attachments. The heat from this department comes from the radiation of fire brick, well adapted for conservatories, as plants are found to thrive from it. This furnace is probably the largest in the market; is commodious, easily managed and cleaned out. This strong and powerful heater has three down draft pipes that convey the smoke from the first radiator to the base at the bottom of these pipes; there are openings to allow all the ashes to be drawn into the ash-pit from the base; the smoke is carried into another radiator of wrought iron that runs from the bottom of a pit to the top of dome on the first radiator, making a very large heating surface. With this the manufacturers have also

direct draft. Size of smoke stack 12 inches. This furnace will burn slack, coal or coke; can be adapted to low cellars or can be made much higher if desired; it has removable iron front and is air-tight, thus being well adapted to public or private buildings in which a great amount of heat may be required. There is nothing to burn out but fire-brick and grate bars, and it must in fact be recognized as the simplest furnace to repair there is in the world. The fire-pot, as in all their furnaces is cast iron at the bottom, with fire brick receiver. Fire-pots lined down to the grate waste heat and clinker.

Two great nuisances in other systems is the dust which arises in shaking or dumping the grate as well as the smoke or dust getting into the warm air conductors; the former annoyance, as unhealthy as it is inconvenient, is prevented by the patent dust flues and ventilators; the latter by means of the air tight character of the conductors. Being a base heater, the entire furnace is utilized for radiation. As owing to the character of the construction, all joints admitting of contraction and expansion,—the joints are all ground and fitted in workmanlike style—warping or breaking of parts is out of the question. The annoyance that has arisen from the ill fitting and giving away of joints in warm air furnaces is incalculable; here the arrangement is durable. All that the fuel offers for combustion is thoroughly consumed, whether gases or smoke, and thus the highest attainable amount of heat assured. This results from the extent to which the furnace intensifies the chemical affinities between the air and the fuel, the process offering a most effective means of diminishing the consumption of fuel and of almost indefinitely increasing the intensity of the fire, to whatever extent may be desired. As additional recommendations it may be mentioned that the patent removable grates and stand are easily removed in a few minutes by any domestic, and that there are convenient openings for cleaning out the furnace.

The complaint of extreme dryness of heat in the room, ordinarily advanced against heating furnaces has no force as applied to the one we here illustrate. That dryness is attributable to the want of ventilation in the room, whereas with this heater there is a continuous supply of fresh air from without. With ample supply of fresh air, the moisture of the air will be developed by heat; on the other hand, without such ventilation, all the moisture in the air of an apartment will be rapidly consumed, the air besides becoming rapidly vitiated, and on this account and that of dryness proving injurious to health. Another complaint against heating furnaces is that the register is apt to get so filled with dust from the air swept from the floor of an apartment that no heat can escape. If dust be suffered to get down the pipes it is certain it will come back with the heat. Another complaint is that a furnace heats the flue too much, as is invariably the case with straight draft furnaces, thus consuming a great amount of fuel. The assertion so recklessly made that a direct draft will suit our soft coal scarcely merits notice, being stamped with absurdity. Still, the heaters we have under consideration allow of a direct draft to operate if this is desired, but parties using the down draft will find not only their trouble diminished, but half their fuel saved. A direct draft furnace requires to be filled four to eight times a day and what with opening feed door and opening or shutting damper, exact a wearisome amount of labor, besides which dust and dirt come in with the fresh air, an evil completely prevented by the Company's system of screening.

We may here advert to the new and convenient improvements of the Company in setting brickwork of obvious advantage to purchasers of their furnaces and assuring the successful action of these. In the firm's career, extending, as we have stated, over more than a quarter of a century, they have set no less than 1,400 furnaces, and have been all the while intent in utilizing suggestions from the construction and working of such furnaces. Ordinarily when a furnace works badly the blame is attributed to the heater, whereas, apart from bad handling, a furnace may fail from bad setting. Of the seventy-four furnaces made in this country, a large proportion are practically inoperative or otherwise defective on this account.

The scale on which these furnaces are manufactured by the firm, which has an extensive plant of most powerful machinery, allows of their being placed on the marked so as to compete in price with all first class furnaces. Their economy, healthfulness, cleanliness and durability, their perfect working, easy management and complete adaptation to every required condition, their furnishing more heat than any other furnace; added to their exemption from all the drawbacks that have attached to heating furnaces, place them in the very van of mechanical and scientific improvement in this line, and afford overwhelmingly convincing arguments for their general adoption. In addition to saving money, they will promote to an incalculable degree bodily health and comfort.

BUFFALO, N. Y.

[FROM THE TRAVELING CORRESPONDENT OF THE TRADE REVIEW.]

BUFFALO, Aug. 30, 1881.

The city of Buffalo will always occupy a prominent position in the commerce, trade and industries of the country. Lake and canal and railway connections have exerted a potent influence on its rising fortunes, and its men of capital have put to full account the advantages it possesses. I propose to notice briefly a number of the establishments I have lately visited, as of interest to a large number of your readers: I found the Shepard Hardware Company engaged as busily as ever on their hardware specialties. They employ 100 hands. The business was established in 1866 by John Shepard. The members of the Company are Chas. C. Shepard and Walter J. Shepard.——J. W. Ruger & Company, who manufacture and furnish to order cracker machinery, reel ovens and every description of baker's tools, find an appreciation of their productions even in Europe. They employ 86 hands. The business was established in Rochester in 1856, and located in Buffalo in 1860. Their trade is evidently growing.——H. B. Scutt & Co., manufacturers of four pointed steel barb fencing, Scutt's Patent, are busied in preparing for the opening up of trade in the Fall and Spring. They employ 35 hands. Their goods go East and West and they are constantly shipping to Europe.——E. & B. Holmes, manufacturers of stave, barrel, keg and head machinery, have 300 hands at work. They have been in business since 1857. I noticed several important improvements in their machines.——At the Howard Iron Works, 225 hands are employed in making stationary and revolving dies, bolt cutters, vises and elevators. All the force available is unequal to the keeping up with orders.——Clarke, Holland & Co. are driving a heavy business in the manufacture of doors, sash and blinds. They employ 180 hands. Shipments are made to the South and Eastern States. The original firm was organized 15 years ago; the present firm was formed about a year since. A branch house in London, England, was established three years ago. Their business is larger than last year. Their building has a frontage of 325 feet and a depth of 375 feet.——Buffalo is a fine position for agricultural works. The threshing machine made at the Pitts Agricultural Works finds a sale even as far as South America. Trade is good. The Company carrying on these works was organized in 1851. Mr. Geo. P. Clarkson is Treasurer and Mr. Thos. Sully, Secretary.——Portable forges and blacksmith's hand blowers are turned out on a good scale by the Buffalo Forge Company. Both their forge and blower have become justly celebrated for convenience and effectiveness. They employ 45 hands, and it is a gratifying evidence of progress that they are about putting up a new brick building, 60x50 feet, several stories high, which they expect to occupy in September.——Cosack & Clark, lithographers, find constant work for 60 employes. They furnish their work chiefly to the Northern States. Their business has been carried on for 15 years.——Farrar & Trefts, have 150 men engaged on C. M. Farrar's Patent Engine, and various machinery. Their shipments are principally to the oil country.——Geo. W. Tifft, Sons & Co. are extremely busy in turning out steam engines and locomotive boilers. The qualities they realize in these are strength, durability, economy and completeness. Their patent arrangement for reversing from a distance is remarkable for economy and effectiveness. They have lately improved their locomotive boilers by increasing their dimensions and adding materially to the thickness of plates. The firm has great manufacturing facilities, and a fair idea of the extent of their operations may be formed from the fact that they employ 300 men. Besides a large local trade they make shipments to the oil country and to the South and West.——DeLaney Forge and Iron Company, established in 1850, employ 150 hands, and are engaged on light and heavy forgings, and hammered shapes of every description from wrought iron or Siemens-Martin steel. They are running eight large steam hammers and have under way a shaft which when finished will weigh 16 tons.——John T. Noye & Sons, manufacturers of millstones and mill machinery, smooth and corrugated rolls, have been in business 46 years. They employ 300 hands, Their shipments are principally to the West and South. Trade at this time is exceedingly good. ——At the Eagle Iron Works, Robt. Dunbar & Son, are building machinery for a grain elevator at Erie, Pa. They have been in business since 1854. The number of employes is 75.——The Dempster Engine Works Company anticipate building new and more extensive boiler works. They employ 35 hands and report trade good. Shipments are made principally to the West.——Buffalo Hardware Company, organized in 1869, have 120 men at work. Their specialties are the manufacture of builders' hardware, school furniture, fine iron and brass castings.——Niagara Stamping and Tool Company finds abundant work in the orders coming in for stamped and japanned tin-ware presses, dies and tools for working sheet metal, and fruit can tools. The members of the Company are Adam Heinz, Geo. J. Munschauer and Michael J. Stark.——Blake & Bixby are doing a large business in the manufacture of packing, fruit and cigar boxes. They have been in business 11 years and employ 20 hands.

An Ohio Mining Scene.

In the State House, Columbus, there is on view an admirable crayon picture entitled "Mining Scenes," drawn by a miner's son, Jonathan Love, of Columbiana county. The Columbus, O., *Dispatch* says of it: "The large center piece shows the underground meeting of miners, considering the mining laws. Mine Inspector Roy is in the act of addressing the meeting. Near him stands the artist's father, and over against the entry way, sitting on a miner's cart, as chairman of the meeting, is the old mining boss, who has been in the mine depicted for twenty-one years. The men are standing, sitting, lying down, and listening with marked attention. All around are walls of coal. A narrow gauge track runs through the apartment, and pillars support the roof. Every man has attached to his head cover a miner's lamp. The aggregate light of these lamps lends sufficient illumination to enable the art connoisseur to penetrate the gloom and read in the men's faces and their clothing, their positions and surroundings a most faithful delineation of a miner's meeting under ground. The mine is located in Columbiana county. The old miners of that region, a good class of men, exercise a healthy influence among the younger people. The artist's father, a man of sterling worth, is of Scotch-Irish descent—a north of Ireland man. The old boss, who wears spectacles, obtained his place through the recommendation of Professor Newberry. When he was making a tour of the State, for geological research he found this man's little mine in perfect order. It was a model mine, though small. The large company owning the mine of the picture asked Mr. Newberry where they could get a boss. He recommended this man, and he has been there ever since, beloved and respected by employers and co-laborers. There are six border sketches. A miner kissing his playful baby in its mother's arms, on the threshold of his home, as he starts to work; entering the mine on cars drawn by a mule; loading the cartridge to make a blast; the blast; coming out of the mine with his cars loaded with coal; returning home—meeting his little girl and babe, he lifts up the playful child and the little girl takes his dinner bucket and goes through it for what there is to eat. This last feature is said to be quite common. The miner always leaves something in the bucket, and the first child to meet him gets the bucket, considering, childlike, that what it gets in the bucket is better than what it gets at the table."

TO MEET the requirements of those desirous of taking the TRADE REVIEW for a limited time in order to judge how far it will be advantageous to become annual subscribers, it will be mailed to them for three months on receipt of fifty cents in postage stamps or P. O. order.

MINES AND MINING.

THE Chrysolite Silver Mining Company announces a dividend of one per cent, equal to 50c. per share, or $100,000 on its capital stock, payable September 10th.

MR. J. J. VALENTINE has made an estimate of the product of gold and silver of the mines of California, for the six months of the present year ending July 1st. It gives: Gold, $9,418,378; silver, $298,264. Total, $9,716,642.

The official coal mining statistics of Pennsylvania for 1880 show that the total number of collieries is 344, number of persons employed 73,373 and the yield of coal for the year was 24,977,260 tons. in the production of which 202 lives were lost and 671 persons were injured.

THE yield of the Idaho, Cal., mine, for the month of July, was $42,500 on which the usual monthly dividend of $7.50 per share amounting to $23,350 has been declared, payable immediately. This is the 144th regular monthly dividend, amounting in full to $3,008,550, out of a gross yield of about $6,550,000.

THE Salt Lake City *Herald* says: The new Cornish pump recently purchased for the Ontario mine has almost arrived. It has already taken some twenty Union Pacific freight cars to bring what is already at the mine, and it is said that before it is all on the ground thirty cars will have been required in its hauling. Some of the castings are reported as weighing about ten tons. It is unquestionably a monster. The output of the mine last month was about a quarter of a million, and had there been sufficient mill capacity the amount could just as well have been half a million. When the tunnel is completed, if not before, the capacity will be increased and it is not improbable that another mill will be erected immediately below the present one. So much for the coming mine of the West.

AS EVERY one knows, the Comstock mines at the present time are all in "borasko," or poor ground, and not one of them is to-day paying a dollar in dividends. On the contrary, they are all levying assessments and are spending enormous sums in prospecting and driving after that will-o'-the-wisp bonanza that is forever being predicted as just a little beyond the levels of every mine on the lode. Never before in the history of the world have such enormous sums been expended for prospecting as we see to-day on the Comstock. The same amount prudently invested in less expensive and more promising districts would no doubt produce vastly better results. An apparent "boom" has been brought about in the Comstocks, the whole list showing a decided advance, the principal stocks being quoted fully 33 per cent above the prices recorded a week ago. Sierra Nevada, for example, is marked up above a half a million of dollars in the aggregate value of the stock, the quotations of $14.75 showing an advance of $5.87 per share for the week. Union Consolidated has advanced some $300,000 altogether, and in seven of the principal stocks $2,000,000 have been added to the prices quoted.—*N. Y. Eng. & Mining Jour.*

WANT of transportation facilities has been a drawback to many of the New Mexico mines, and still is; but the enterprise of the Atchison, Topeka and Santa Fe, and the Denver and Rio Grande will soon bring these mines into more prominence. Railroad communication is already within 42 miles of Bonza and Santa Rita, and before the end of the year these mines will be within 8 miles of a railroad.—*Boston Jour. of Commerce.*

THE net earnings of the Calumet and Hecla for the year ending June 30th, amounted to $2,282,876.

"A Girl's Choice."

It was in a drug store of course. All interesting incidents occur in drug stores—that is nearly all. She was pretty, with blue eyes and golden hair, one of those kind of beauties the poets would have called an "angel," but for the fact that a colony of pimples on her fair frontispiece precluded all thought of a celestial being. Bowing timidly to the handsome clerk she asked for "Swayne's Ointment for skin diseases," and upon receiving it vanished like the morning dew before the summer sun.

B. CAMP, Cuyahoga Falls, is adding $1,500 worth of new machinery, including a mammoth press for drain tile.

Water-Glass.

Von Helmont, in 1640, found that when, in making glass from sand and alkali, an excess of alkali was used, the glass would dissolve in boiling water. In 1827, Von Fuchs utilized water-glass, soluble glass, or silicate of soda, in stereochromy or solid color-painting, in monumental and mural decoration, and in the preparation of cements and artificial stones. London *Engineer* suggests that, although used for a large number of purposes in the arts, it is capable of more extended application when it becomes better known. A compact, marble-like stone is formed, when it is mixed with chalk and is dried. Similar stones are formed by mixing water-glass with bone-ash, zinc-white, and magnesia. Ransome's artificial stone is prepared by mixing sand with water-glass solution, to form a plastic mass, which is then pressed into the required shapes, and placed in solution of calcium chloride; the silicate of calcium thus formed cements the grains together, and the chloride of sodium formed at the same time is removed by washing with water. With clay, lime, sand, cement, etc., soluble glass enters largely into the composition of many of the patented artificial stones, plastic tiles, slates, etc., and also of our common soaps, the detergent qualities of the glass making it an excellent scouring material. In cold water, this glass is nearly insoluble, or dissolves very slowly; but in boiling water, it dissolves with facility, and remains in solution after the water has cooled. If the water contains 30 per cent. of the glass in solution, we have a substance of a sirupy consistence, which may be used as a transparent varnish on many substances; on drying, it forms a glassy coating that fairly resists moisture and change of temperature.

The Perfumery Trade.

No less than 2,100 packages of fine perfumery were imported at Boston and New York in 1880. The trade is substantially in the hands of a few firms. Some kinds of perfumery are worth their weight in gold. The export of fine perfumery is principally from Grasse, Nice, Cannes and Bremen. The business is divided into two parts. The manufacturer extracts from the flowers their essential oils. The perfumer buys these oils, pomades and extracts, and compounds them in various ways. Only about a dozen of all the fragrant flowers in the world are used in the manufacture of perfumery, viz: the violet, rose, orange flower, jasmine, tuberose, cassie, lavender, thyme, rosemary, geraniums, jonquil and fennel. The rose and the orange are the most valuable. Of the numerous varieties of the rose, only one is used, the Provence rose, single, pale pink, the most sweet smelling of roses; not hardy. Picking for perfumery occurs in almost every month of the year. The process of manufacturing perfume is in itself very interesting, especially to the ladies. A ton of roses yields only two ounces of the attar. If kept at a temperature below 60°, attar crystalizes; if kept open to the air and light, it is easily votalized. Perfumed oils are made by putting fresh quantities of flowers into the finest of virgin olive oil, from twenty to thirty different times. In this manner the perfumed oils of violet, jonquil, rose, orange and cassine are made. The essential oil of flowers has a strong affinity to lard or grease. The latter, rendered as white as snow, is perfectly saturated with the flowers. The process is repeated many times. In this way we have pomade of rose, orange, cassie and violet. The affinity of the perfume of flowers for alcohol is, however, stronger than for grease. Pomades immersed in alcohol are rendered into extracts, the grease leaving the perfume. Extracts of orange, rose, tuberose, cassie, violet and jasmine are produced in this way.—*Boston Commercial Bulletin*

United States Coal Deposits.

Professor Schaefer says: The territory occupied by the anthracite coal fields of Pennsylvania is but a diminutive spot compared with the area of bituminous coal in Pennsylvania alone, to say nothing of its vast extent in other portions of the United States, and in Great Britain, France and Belgium. The area of the anthracite of the United States is but 470 square miles, not one-twentieth the size of Lake Erie, while the wide-spread bituminous coal fields cover twice the area of our four great lakes; the anthracite making but an insignificant showing on the map of the continent. But the comparison with the bituminous area is deceptive, unless the relative thickness of the two is taken into consideration. If the anthracite beds were spread out as thinly as those of the bituminous region they would cover eight times their present area, or 3,780 square miles. And, again, if the denuded spaces within the borders of the anthracite coal fields were covered with a deposit of coal as thick as we may justly suppose they once were, and the remaining still are, the available area would be increased to about 2,000 square miles, or 1,280,000 acres; equal to a coal deposit of 92,840,960,000 tons.

REVIEWS.

Blackwood's Magazine for September. American Edition. NEW YORK: Leonard Scott Publishing Co., 41 Barclay street.

The September number of this brilliant monthly opens with "Uncle Z.," which promises to lead to some lively adventures. "Hints for the Vacation Ramble" portray features of scenery in Great Britain and on the continent. "A Little Tragedy," termed Florio, follows, the scene being laid in Venice. "The Private Secretary," which sketches characters and scenes, political movements and social occurrences in the higher circles of English society, maintains its interest. Other articles are The Land of Khemo, Holidays, Autobiography of Edward Gibbon, The London Stage, and The Experiences of an Officer Besieged in the Transvaal.

"*God Bless the Little Woman.*" CINCINNATI: F. W. Helmick.

The words are written by Howard N. Fuller and the music was composed by Charlie Baker, the popular song writer. This song is easily arranged so that all players on the piano can master it with perfect ease.

Building Operations.

That the activity in building operations would be much greater than it is, only for the difficulty in obtaining materials, there is no question. The increase in wages, large as it has been, is not looked upon as having any retarding effect, but many building projects have been postponed and others abandoned owing to the difficulty of obtaining the necessary material. Brick has advanced from $6.50 to $8 and $10 for ordinary, and $12 to $15 for select front, per thousand. Of course the prices for fancy and pressed brick far exceed those quoted, and we know of instances where almost fabulous prices were asked and obtained to secure enough to complete contracts that would brook no delay. Not only is the price high, but in many cases brick cannot be had at any price. The protracted winter set back the production largely, and we shall probably see the present demand and scarcity of supply last until well into next season. There has not been much advance in the price of lumber, but owing to the great losses by the June floods here, there is a certain scarcity observable. Bill stuff has gone up from $3 to $5 per thousand and rough timber is held at an increase. But as brick is now so much preferred to lumber for building purposes, the increase in price of the former has had the greatest effect on the building business. Painting has gone up considerably, and taking all things into consideration the advance in the cost of building this year is an average of thirty per cent on the prices of last fall.—*N. Y. Brick, Tile and Metal Review.*

The Lake Fisheries.

A preliminary report of the fisheries of the great lakes, prepared by Mr. G. Brown Goode, special agent in charge of the Fishery Division of the Census Bureau, shows that at the time of taking the census there were engaged in this industry on the lakes 505 fishermen, with 49 steam tugs, 1,607 other vessels, and boats and other apparatus and appliances, aggregating in value $1,345,975. The products of the several lakes were: Lake Superior, $105,535; Lake Michigan, $612,410; Lakes Huron and St. Clair, $349,365; Lake Erie, $578,690; Lake Ontario, $138,050; making a total of $1,784,050. The condition in which the products were marketed was: Fresh fish, $1,102,950; salt fish, $402,670; frozen fish, $126,100; smoked fish, $109,970; caviare, $34,315; isinglass, $5,765; oil, $2,280; making a total of $1,784,450.

SUBSCRIBERS and others when writing to advertisers will confer a favor on the publishers by mentioning that they saw their advertisement in the columns of the TRADE REVIEW.

SCIENCE AND INVENTION.

ELECTRICITY ON SHIPBOARD.—A patent has recently been taken out for a means of steering a ship by electricity. The apparatus is the invention of Mr. W. F. King, an Edinburgh electrician, and was recently tried on board a steamer sailing between Glasgow and London. Its object is to dispense with a helmsman and make the compass itself steer the ship. For this purpose the compass card is fitted with an index which is set to the true course, and one degree on either side of the true course two metal contact pins are adjusted; each pin is connected to a single Daniel cell, and when the ship deviates as much as a degree from her course on one side or the other the index comes into contact with one or other metal pin. The result is that a positive or negative current flows and actuates a hydraulic apparatus which works the helm. The device is as yet only on trial; but if it can be made to answer in rough weather it will doubtless be received with favor.

TO PRESERVE FLOWERS.—M. Cornelis describes in *La Belgique Horticole* a process for preserving flowers which has been very successful. His plan consists in burying them in sand, then drying them. The most convenient receiver for performing this operation is a simple paper cornet, the point of which has been compressed so as to form a truncated cone. The drying may take place at a temperature of 35° to 40° C., in a place where the temperature is easily renewed, but the method which gives the best results is desiccation *in vacuo*, in presence of ordinary sulphuric acid, or any other substance absorbing water with avidity, such as fused chloride of calcium, caustic potash, etc. The flower, once dried, a process taking sometimes eight to ten days, it should be drawn from the sand with great care, for it is very fragile. On emerging from the sand it is generally soiled by sand still sticking to it, and to clean it, coarse sand is let fall on the flower from a certain height. After this kind of washing, the flower has received the treatment it requires, and it may now be preserved indefinitely, if kept in presence of lime, in a vessel hermetically closed. The more rapid the drying has been, the better does the operation succeed.

A COMBINATION COTTON PICKER.—A combination cotton picker, with fingers of iron, is working a revolution in cotton growing. It will, it is thought, reduce the price of cotton two cents a pound. The machine, by means of beaters and fans, takes the fibre from the boll, removes the seeds and all impurities, finally delivering it straightened, ready for the bale. Efforts are making to develop the invention in season for exhibition at Atlanta.

CARRYING PURE AIR IN A KNAPSACK.—A knapsack filled with oxygen is being supplied for trial to some miners in England. It has four cubic feet of gas and affords just time to escape on the run.

THE tide of grain that comes sweeping down the Mississippi, en route to New Orleans, is attracting the attention of Gould, Vanderbilt & Co. The elevators at St. Louis are very active in loading barges for New Orleans. St. Louis proposes to keep elevator room far ahead of the requirements of that trade, so that at all times there will be idle accommodation for a full 1,000,000 bushels, and at the same time attract still greater consignments to St. Louis warehouses.

MARKETS.

FINANCIAL.

Office of the TRADE REVIEW.

FRIDAY EVENING, Sept. 2.

The demand for money has somewhat increased. Shipments of money to the country have been light. With continued active depositing the supply of loanable funds is increasing. Prime paper is placed readily at 7 to 8 per cent. Discounts are easy at 7 to 8 per cent. Money is obtained on prime collaterals at 5 per cent on call and 6 per cent on 4 and 6 months' time.

IRON.

Prices continue firm, and there is a demand that would justify an advance but for the consideration that foreign makers would be tempted to export such a quantity as would induce a fall below current rates. There is little speculation, the trade confining itself to the legitimate requirements of the country. The furnace companies are doing a large business in American pig, and cannot be induced to make concessions, looking for no further decline. There have been but moderate arrivals of Scotch pig. The chief enquiries in the Eastern markets are from the West. We quote Eglinton at $21@$21½; Coltnets, $23¾; Glengarnock, $22.50; Gartsherrie, $23; and Summerlee, $23½. Iron rails are in good demand. Old rails rule strong.

CINCINNATI.--(Reported by E. L. Harper & Co.)--There has been no change in the market since last report. Stocks in hands of consumers are light. The immense consumption noted in our previous reports continues, and the advices received from all points are very favorable. Furnacemen, as a rule, feel confident of higher prices, and are declining to sell for future delivery longer than two or three months ahead at present prices.

CINCINNATI.--(Reported by Rogers, Brown & Co.) The pig iron market continues strong and active. Prices for the higher grades of strong coke iron have materially advanced and it is not easy to place orders at the improved figures. Forge irons are affected favorably by the demand at Pittsburgh and other outside markets, but there is no demand yet for consumption in this market. The deadlock between the mills and men continues practically unbroken. The demand for car wheel irons is very active, as is also that for hot blast charcoal irons, though stocks for the latter are very light, and prices stiffening. Stonecoal silvery irons being in fuller supply show less strength. Hot Blast Foundry Iron—Hanging Rock charcoal No. 1 $26.00@27.50, 4 mo.; No. 2, 25@26, 4 mo.; Southern No 1, $25@26.50 4 mo.; No 2, $24 00@$25.00, 4 mo.; Strong Coke, No. 1, $23.50@24.00, 4 mo.; No. 2, 22.50@23.50, 4 mo.; No. 3, $21.00@22.00. 4 mo.; Hocking Valley, No. 1, $21@22.50, 4 mo.; No. 2, $20.50@$21.50, 4 mo.; American Scotch, No. 1, $20@22.50, 4 mo.; Forge--Strong Neutral, No. 1 Mill, $21, 4 mo.; Cold Short, No. 1, $19.50, 4 mo. Car Wheel and Malleable--Hanging Rock Cold Blast, $37@41, 4 mo.; Hanging Rock Warm Blast, $29@32, 4 mo.; Southern Car Wheel $33@38, 4 mo.; Lake Superior, Car Wheel Iron, $33@35, 4 mo.; Lake Superior Malleable, $33@$35.

COPPER.

Transactions have taken place at 16½@46⅝. The consumption is believed to be very large. It is said that the consumption is enormous, and that manufacturers who recently made large contracts with the companies, are taking their copper very actively.

COAL.

The coal trade is active. There have been large arrivals from the coal districts. Whilst local consumption maintains its usual average, shipments have been heavy. We quote as follows: Brier Hill coal, $3.50@$4.00; Willow Bank coal, $3.15; Fox Lake, $3.15; Massillon coal, $3.00; Cannel coal, $3.75; Blossburg, $4.00; Carbon Hill, $2.90; Straitsville, lower vein, $2.80; Shawnee, f. o. b. at Sandusky, $2.80. Following are car load prices to dealers on track: Massillon lp, $2.85@3.00; Massillon nut, $2 50@$2 75. Delegates representing all the coal miners in the Hocking Valley, in session at Logan, have discussed the propriety of inaugurating a strike in case operators refuse to advance the price for mining from 70 to 80 cents per ton. It is understood the proposition met with favor, and that after some discussion as to whether it was advisable to inaugurate a strike at once, action was postponed to October.

HARDWARE.

Prices are firm, and the position of retailers is encouraging. Nails are in good demand at the late advance noted. The outlook is good, and it is far from unlikely that a further advance will shortly be established. Wrought iron pipe is unchanged, but a slight advance is to be anticipated. The manufacturers of cast butts have advanced prices about 10 per cent. by a change in discounts. At a meeting of the manufacturers of machine bolts, nuts, washers, etc., prices have been advanced as follows: Machine bolts, bolt ends, lag screws and skein screws, discount 60 per cent.; square and hexagon nuts, 7½ cents off list; plate washers, 7 cents off list. Terms cash. The manufacturers of screw, strap and plate hinges, have advanced their prices ¾ cents per pound. Sargent & Co's prices for these goods are as follows: Screw strap hinges, No. 98, 8 to 12 inch, 6½ cents per pound; 14 to 36 inch, 5 cents per pound. Plate hinges, Nos. 160 and 162, 6 to 12 inch, 6½ cents per pound; 14 inch and larger, 5 cents per pound; Nos. 166 and 168 hook hinges, 8 to 12 inch, $6.60 per 100 pounds; 14 inch and larger 5½ cents per pound, all net. For cash in thirty days a discount of 10 per cent. from these prices is allowed.

LUMBER.

The market is strong, with an upward tendency. Stocks of dry lumber are in especial good demand. Moderate railroad charges have induced considerable deliveries by rail. An improved business has been transacted as compared with preceding weeks, notwithstanding large purchases had been made anticipatory of an advance in prices. For piece stuff there is an especially good enquiry as well as for good strips and 2 inch stuff. Lath and shingles are active and firm. The fact that the stocks in the Northwest generally need replenishing, will tend to give a firmness of tone to the market, and it is confidently anticipated that the Autumn trade will be active and large. Several leading descriptions of hardwood are scarce, and there has been a run upon spruce.

LUMBER.

PLANK.

2 INCH--MIXED WIDTHS.
A 1&2, $45, A3, $28, B. $30, C. $18, D. $14, E. $12.
1¼ AND 1½ INCH.
A 1&2, $45, A3, $38, B. $30, C. 18. D $14. E $12.

BOARDS.

1 INCH MIXED WIDTHS.
A 1&2, $42, A3, $32, B. $26, C. $18. D. $14, E. $12.

STOCK BOARDS.

12 INCHES WIDE.
A 1&2, $43. A3, $34, B. $27. C. $17, D. $15. E. $13.

STRIPS.

6 INCH.
A 1&2, $42, A3 $33, B. $30, C. $20. D. $17, E. $13.

WORKED LUMBER

Flooring.
A3, $42, B. $38, C. $24.
Norway Flooring.
A3, $28; B $22; C $18.
Matched Drop Siding, 6 in.
A3, $42, B, $38, C, $24; D, $18.
Beaded Ceiling $2 higher than flooring
One half inch Bevel Siding.
A 1&2. $24, A3 $20, B $18
Ash Flooring, A1&2 $40.

BILL STUFF.

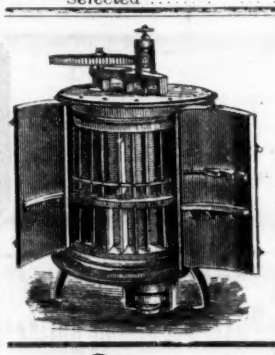
Small, 16 feet and under, $14.
20 feet and over, $4 less than length; 18 feet, $15.

SHINGLES, LATH AND MILL WORK

Shingles XXX 18 inches	$3.75
Shingles Clear Butts	2.75
Lath	2 50
Surfacing one side $1.50; 2 sides $2.00	
Making, Flooring and Drop Sidings	2.50

HARDWOODS.

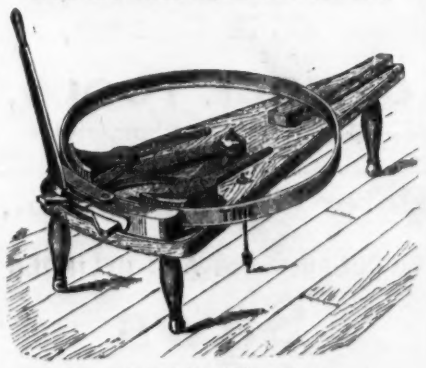
OAK.—1st and 2d clear, 1 to 4 inch	$35 00
3d	30 00
1st common	25 00
2d common	28 00
BLACK WALNUT—Clear counter tops, 20-inch and up	150 00
1st and 2d inch	75 00
1st and 2d plank	80 00
Common	55 00
Select, ¾x10 inch and over	68 00
ASH--1 to 2 inch, $35, over 2 inch	38 00
Wagon stock	40 00
HICKORY wagon stock 1 to 4 inch	50 00
MAPLE--Clear, 1 to 4 inch	35 00
BUTTERNUT--1st and 2d clear, 1-inch	55 00
CHERRY--1st and 2d clear, 1-inch	60 00
WHITEWOOD--Clear selected, w'd 1 to 4 in.	400
1st and 2d clear, 1 to 4 inch	35 00
Selected	30 00



Geo. Oliver,
Manufacturer of the
IMPROVED
UNITED STATES
BRAN DUSTER,
Mill street, corner Brown.
Rochester, N. Y.
Bran Duster Brushes and Wire Cloth furnished to order at Lowest Prices.

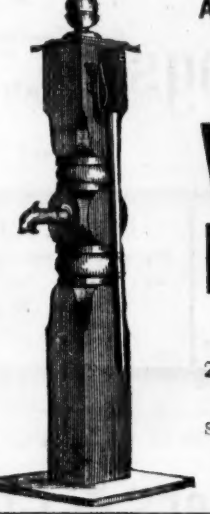
Olds'
Pump Co
LIMITED.
ERIE, PA.
Wholesale Manufacturer of
WELL and CISTERN PUMPS,
From Wild Cucumber Wood.
The Cheapest and Best in Use.

Blacksmiths, Hardware
MEN. and AGENTS, should read this.



Little Giant
Wagon Tire Upsetter.
This machine is strong, durable and cheap, and is superior to all others for upsetting or shrinking wagon tires, and bars of iron without cutting them. It will upset tires one inch at a heat, and is adapted to tires of any size or diameter. Every blacksmith should have one. They are the best selling machines hardware merchants and agents ever handled. Price only $12.00.
Send for Circular. LITTLE GIANT MF'G CO
Millport, Chemung Co., N. Y.

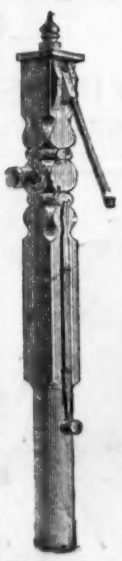
SWAYNES
SWAYNES OINTMENT.
AN UNFAILING REMEDY FOR ALL SKIN DISEASES
TETTER. ITCH. SORES. PIMPLES. ERYSIPELAS. RING WORM. BLOTCHES &C.
OINTMENT
THE GREAT CURE FOR
ITCHING PILES
Symptoms are moisture, stinging, itching, worse at night; seems as if pin-worms were crawling about the rectum; the private parts are often affected. As a pleasant, economical and positive cure, SWAYNE'S OINTMENT is superior to any article in the market. Sold by druggists, or send 50 cts. in 3-ct. Stamps. 3 Boxes, $1.25. Address, DR. SWAYNE & SON. Phila., Pa.



A. B. GUNNISON,
WHOLESALE
Manufacturer and Jobber of
Wood Pumps
Office and Works,
233 East 22d Street,
ERIE, PA.
Send for Illustrated Catalogue and Price List.

Smith & Curtiss,
JOBBERS OF
TEAS,
COFFEES AND SPICES.
ALSO PROPRIETORS OF THE
Cleveland
Coffee and Spice Mills,
107 & 109 Bank Street,
CLEVELAND, - - - OHIO.

Why Not Buy the Best?



A. S. Comstock,
Indianapolis, Ind.
Manufacturer of
WOODEN
Pumps,
with or without
Porcelain Lined Cylinders.
Send for Price List.
DISCOUNT TO THE TRADE.
N.B.—Deep Well Pumps a Specialty.

JOHNS & CO.,

Steam Lithographers,

ENGRAVERS, JOB PRINTERS, BOOK BINDERS,

62 SUPERIOR STREET, (On Viaduct) CLEVELAND, OHIO.

Oils.

CREAT WESTERN OIL WORKS.

Scofield, Shurmer & Teagle,

REFINERS OF

SUPERIOR ILLUMINATING OILS,

Gasoline and Naptha.

Office, Rooms 2 & 3 Arlington Block, Euclid Ave., Cleveland, O.

Harmon, Gibbs & Co.

CORRY, PENNA.

IMPROVED SLIDE VALVE STATIONARY

Steam Engines

Send for Price List of Engines and Boilers.

Chicago Office—J. A. PEOPLES & Co., 28 South Canal Street.

Castings.

TAYLOR & BOGGIS,

Iron Founders.

Light Castings and Metal Patterns a specialty.

65 and 73 Central Way. - - CLEVELAND, O

Truck Hubs.

Black Birch Carriage, Wagon and

TRUCK HUBS.

Sizes from 3½ x 6½ to 18 x 22.

R. M. WHITNEY,

OLEAN, Cattaragus Co., N. Y.

Desnoyers & Co.

162 Prospect Street,

Plumbers, Gas Fitters & Sewer Builders

Special attention given to Remodelling and Ventillating the Plumbing and Sewerage of Old or New Buildings. Leave Orders at above Number.

☞ By Telephone No. 986.

Eclipse Steam Pump Works.

H. D. McNIGHT & CO.,

MANUFACTURERS OF

Steam Pumps.

77 First Avenue, Pittsburgh, Pa.

Axes And Mill Picks.

The Toledo Edge Tool Works.

McIntyre & Moore,

Manufacturers of

ALL KINDS OF EDGE TOOLS,

Axes, Mill Picks and Ship Timber Axes a Specialty.

86 St. Clair Street, TOLEDO, OHIO.

Peter Gerlach & Co.,

MANUFACTURERS OF

CIRCULAR, LONG AND CYLINDER

Saws

Of all Sizes and Varieties.

Ice Tools of all Descriptions.

Also Builders of Patented

Stave Sawing, Heading & Barrel Machinery.

Office and Warerooms, 51 Center Street, Cleveland, O. Factories on Columbus and Winter Streets.

GEORGE H. BUCK,

HOUSE, SHIP AND ORNAMENTAL

CARVER,

66 CENTER STREET, CLEVELAND, O.

Figure-heads, Eagles, Busts, Show Figures for Store Signs, and every variety of Ornamental Letters for Signs, executed at the shortest notice.

☞ All orders by mail promptly attended to.

W. D. COWDEN,

Successor to

G. W. FRENCH,

Manufacturer of Machine, Architectural and Ornamental

PATTERNS,

Patent Office Models, &c.

☞ CONTRACT WORK A SPECIALTY.

57½ Center Street, Cleveland, O.

L. P. SMITH. JAMES OLWELL.

SMITH & OLWELL,

General Machinists,

Manufacturers of

STEAM ENGINES,

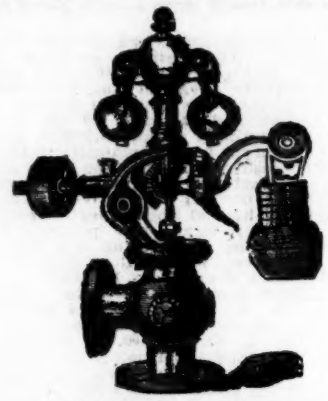
(STATIONARY AND MARINE,)

and Machinery of all descriptions.

☞ Special attention given to Marine jobbing.

MATTESON'S PERFECTED

SAFETY GOVERNOR



ADAPTED TO ALL

VARIETIES OF STEAM ENGINES.

Warranted to insure any positive uniform speed desired, under the most violent changes of load or boiler pressure. This

GOVERNOR AND VALVE

has been over SEVEN YEARS in USE upon all kinds of engines, without showing any wear or steam cut.

Engine builders and dealers who are not yet using this Governor should send for a sample. Will send Governors on trial to all who use steam power. Send for Circular.

MOLINE GOVERNOR WORKS,

MOLINE, ILL.

National Machinery Company, Agents, corner of Bond and Rockwell Streets, Cleveland, O.

CLEVELAND

ELECTROTYPE

FOUNDRY

55 FRANKFORT STREET CLEVELAND, O. 55

W. L. COTTRELL & CO.,

PATTERN AND MODEL MAKERS.

Personal attention given to all work, and satisfaction guaranteed.

☞ Correspondence solicited.

W. L. COTTRELL. S. T. JULL.

Springfield Brass Foundry.

Pattern and Model Work a Specialty.

Castings done in White Metal, Brass, Zinc, Type Metal, Pig Lead, Pig Tin, Bar Lead, Bar Tin, Antimony, Copper, Spelter, &c., &c.

Cash paid for Old Brass and Copper.

McLAUGHLIN & SHILLING.

68 South Limestone Street, SPRINGFIELD, O.

J. C. McNEIL,

Proprietor

Akron Boiler Works,

Manufacturer of

Boilers & Heavy Sheet Iron Work

Specialties of

GLOBE ROTARY BOILERS

For Paper Mills. Also

MAGAZINE HEATING BOILERS

for Residences and Public Buildings

For prices address

J. C. McNEIL, Akron, Ohio.

Hoisting Machinery Exclusively.

Hand Power, Steam and Hydraulic. Give height of building and size of hatch, and send for our illustrated circular and prices. Every Elevator warranted to give perfect satisfaction. Prices low.

C. H. MITCHELL & CO., 105 Michigan Street, Chicago.

Ohio Preserving Comp'y,

CLEVELAND, OHIO,

Manufacturers of

Fruit Butter

JELLIES, JAMS,

MINCE MEAT.

Jelly in Glass, &c.

Send for Price List.

OHIO PRESERVING CO.

235 & 237 Erie Street.

JUDSON'S PATENTED

SECTIONAL

Assay Furnaces

AND APPLIANCES.

Model Furnace for 1881,

All steel, light and durable, with Revolving Grate, etc. Also

Judson's Practical Stoking Attachment

Guaranteed to feed coal, coke or charcoal without choking the draft.

Manufactured only by the patentee,

W. E. JUDSON,

Cleveland, O.

Altick's Self Acting Fountain.

A VALUABLE AND BEAUTIFUL PRESENT

for all Seasons, and

Suitable for Lawns, Gardens, Conservatories,

Verandas, Parlors, Sleeping-Rooms, School-Rooms, Stores, Offices, Public Halls, Steamboats, Parlor Cars, Barber Shops, Restaurants, Drug Stores, Dentist Parlors, Photographic Rooms, etc., etc.

By proper care our Fountains will last for years. No packing to replace. No rusting out in a few years. No complicated mechanism. No humbug, and no glass balls or bases to break.

That part of our Fountain which comes in contact with the water, is made of *Brass* or *Bronze*, and will not rust.

For price list, &c., send for descriptive catalogue.

WILLIAM ALTICK, Sole Manufacturer.

No. 7 South Canal Street, Dayton, Ohio.